

CHAPTER FOUR ECONOMY

GENERAL

One important consideration in regional land use planning is the understanding of the significance of local economic activity to a regional geographic area such as Carbon County. The ability of a region to sustain a resident population is, in part, dependent upon the availability of industrial and business activities that provide local employment and ultimately generate household income.

The provision of regional public services is also highly dependent upon economic activity. Taxes and other revenues that are generated from the private sector are used to sustain the operation of governmental services, as well as the development and maintenance of public facilities.

The primary industries and related primary employers that generate economic investment, production, and employment in Carbon County represent the regional economic base of the Carbon County economy. The primary industries that comprise the regional economic base include:

timber
mining,
oil and gas,
agriculture,
transportation,
tourism, and,
government.

These industries and primary employers provide considerable direct employment and household income in the County and generate significant tax revenues to municipal, County, State and federal government. The wages and other direct expenditures made by these industries and primary employers ripple through the Carbon County economy. Industry expenditures, combined with the consumer demands of its labor force, also create a demand for a wide variety of services that support primary industrial activities as well as the consumer demands of Carbon County residents and visitors.

One of the unique primary employers in Carbon County is the government sector. From an econometric perspective, government operations typically represent a cost to the general public and the regional economy. At the same time, government employment generates significant indirect employment and income to the regional economy that is derived from the personal expenditures of government employees. These economic benefits enhance the viability of the retail trade sector and various professional services in Carbon County.

Other industries that manufacture or produce products in Carbon County are also important to the economy. While these industries provide significantly less employment than the primary industries of the County, they provide substantive employment opportunities, generate revenue to the County's revenue base, and enhance the economic climate of the regional economy. The availability of these industries is often an important consideration of prospective investors who are seeking to relocate an existing business or industry within an area such as Carbon County.

The service sector of the Carbon County economy includes professional services; retail and wholesale trade; construction; finance, insurance and real estate services; as well as communication and public utilities. These services are economically reliant upon existing industries, as well as residents who work for primary employers or in the service sector. These businesses also generate important revenues that help support the operation and maintenance of County and municipal government.

The service sector also generates other direct expenditures within the service sector. Small businesses obtain materials and services that are required to support the management, operation, maintenance, and expansion of small business enterprises.

In the following paragraphs, the contribution of each primary industry and the service sector is briefly described and quantified to determine the significance of these activities to the Carbon County economy. The importance of the regional economy is evaluated in terms of:

- direct employment, wages and other direct expenditures in the Carbon County economy,
- indirect jobs and expenditures that are generated within Carbon County,
- County governmental revenues derived from primary industries, and,
- potential constraints and opportunities that may impact future industry activities or expansion.

Potential economic expansion and development opportunities that are envisioned by local industry representatives are also presented to help envision future land use requirements. Potential barriers to future economic development are also identified and correlated with potential economic expansion to provide a more realistic assessment of future economic growth.

METHODOLOGY

The economic overview presented in Chapter Four is primarily based upon a review of relevant available information from reliable industry representatives and governmental agencies, as well as discussions with corporate representatives of various industries and primary employers that are based in Carbon County. In addition, selected results from the small business owner and ranch surveys (see Chapter Three) provided important data concerning the volume and proportion of ranch and small business expenditures within Carbon County.

The base year of 1995 was chosen for the evaluation of most all industries. This year was chosen to help ensure the presentation of comparable information between industries. Information from governmental agencies typically lags one to three years as agencies collect, aggregate, and publish public information.

In some cases, information was only obtained for 1996. This approach was used when industry representatives or governmental agencies retained, or made available information from only 1996. Where possible, data was included for both 1995 and 1996.

TIMBER INDUSTRY

General Status

The timber industry in Carbon County primarily includes three lumber mill operations (Figure 4-1). The Hammer Mill in Encampment is a smaller family-owned operation that employs approximately 38 full-time workers. In Saratoga, the Louisiana-Pacific Mill provides employment for about 183 residents of Carbon County. In Medicine Bow, Western Wood Products employs approximately 17 full-time personnel.

The Hammer Mill

R. L. "Mike" Hammer bought his portable sawmill in 1950, which operated at various locations in Carbon County. In 1961, the mill was moved to Encampment (Moulton, 1997). After serving both wholesale and retail customers, the regional downturn in the Carbon County economy forced a closure of the mill in about 1979.

EXISTING TIMBER INDUSTRY OPERATIONS IN CARBON COUNTY

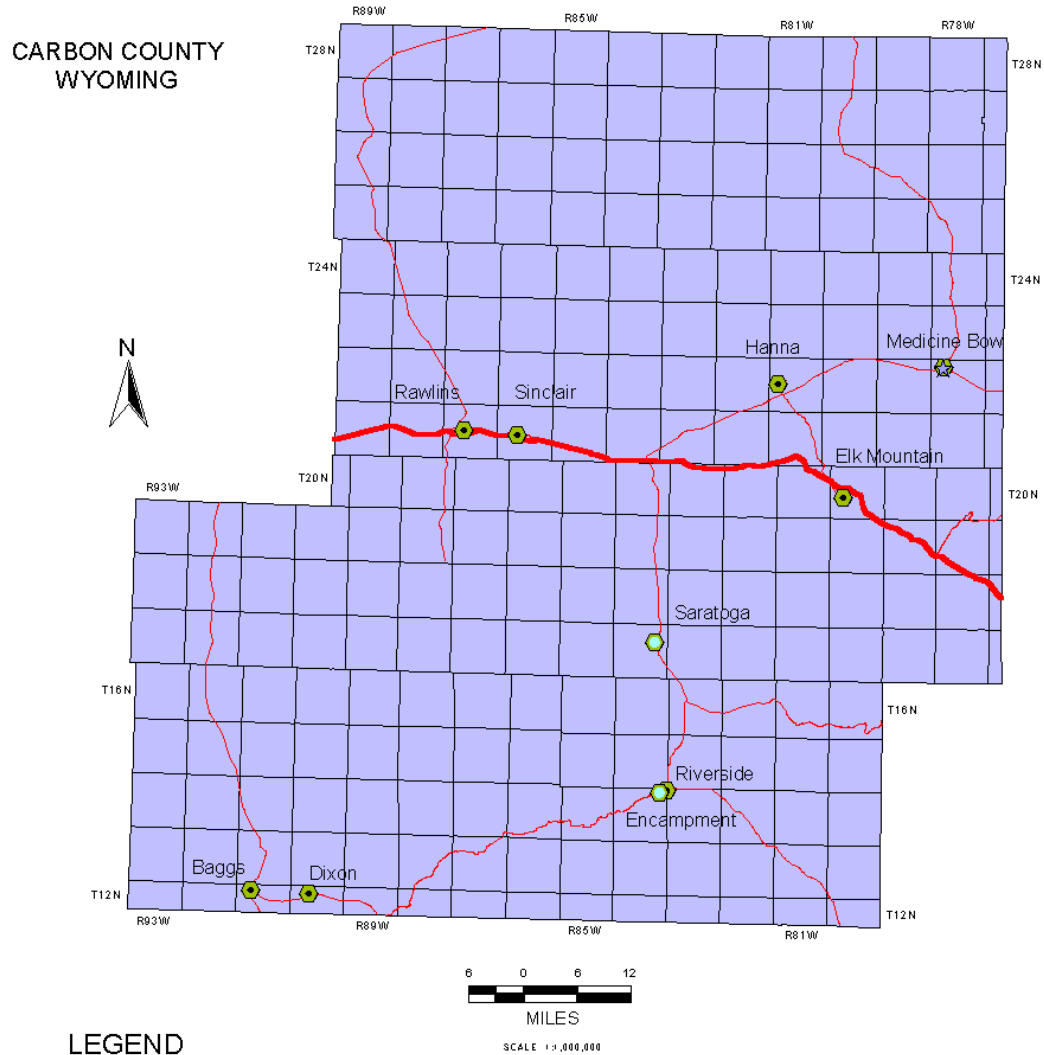


FIGURE 4-1

Source:
1990 Census Tiger Data 1:1,000,000
BLM 1:100,000

However, in 1982, the Hammer Mill re-opened after the Mill secured a U.S. Forest Service contract for the purchase and harvest of approximately 10 million board feet (MMBF) of timber from the French Creek area (situated generally east of Encampment, Wyoming). The contract was a small business set-aside, which helped the Mill to be competitive with Louisiana-Pacific and other larger mills. The French Creek timber harvest contract, combined with related sales of the processed timber, also enabled the Hammer Mill to purchase a new sawmill in 1984 and new planer equipment in 1989 (Hammer, 1997).

The Hammer Mill carries out the harvest and hauling of timber from nearby forests that are owned by the U.S. Government and the State of Wyoming. Occasionally, the Mill will also harvest limited volumes of raw timber from private landowners in Carbon County. The types of timber typically harvested by the Mill primarily include lodgepole pine and Englemann spruce. At the present time, all harvest areas are generally within a 50-mile radius of the Hammer Mill.

Subsequently, contract loggers and employees transport the harvested timber to the Hammer Mill where the timber is sawed and planed into 1x material, e.g., 1x4 through 1x12-inch boards. These products carry a Timber Industry Product (TIP) quality stamp; the quality of most lumber products from the mill consist of dried #2 or better, as well as #3, and #4. The 1x-products are sold almost entirely to wholesale buyers in the east, southeast, and Midwest areas of the continental United States. The Hammer Mill also sells similar products to a small retail market in Carbon County.

Wooden studs for the construction industry were processed at the Hammer Mill until 1994. The volatility in the sales price of this product prompted management to discontinue the manufacture of this product (Hammer, 1997).

Wood shavings and wood chips are also sold to market sources in Colorado. This material is used primarily by agricultural operations, e.g., hog farms, as an absorbent of the moisture in manure.

Louisiana-Pacific Mill

The Louisiana-Pacific Mill in Saratoga, Wyoming is a regional lumber mill. The facility is owned and operated by its parent corporation, Louisiana-Pacific Corporation (LPC). LPC purchased the former Edward Hines mill in the early 1980's (Perue, 1997).

In 1995, the mill employed approximately 84 residents of Carbon County, as well as some 78 independent logging contractors in Carbon County. An additional 21 persons were employed via contracts with Louisiana-Pacific for construction projects, the hauling of wood chips, and other miscellaneous activities (Louisiana-Pacific Corporation, 1996).

Approximately 90 percent of the production at the Louisiana-Pacific operation are associated with the processing of raw timber for 8-foot, 2x4-inch lumber for the construction industry. Secondly, the mill produces construction grade 1x4 and 2x3-inch lumber. These lumber products are stamped according to the quality criteria determined by the Western Wood Products Association. Wood chips are a by-product of mill operations; this material is sold to the paper industry. Wood shavings that are derived from the operation of LPC's planer are burned as a source of energy, as well as sold to turkey farms for an absorbent material (Slater, 1996 and 1997).

LPC's Saratoga mill presently harvests raw timber primarily from central and west Wyoming, as well as the Routt and Arapahoe-Roosevelt National Forests in Colorado. The mill has recently obtained a timber harvest contract from the U.S. Forest Service for the purchase and harvest of about 8 million board feet (MMBF) of live sawtimber in the Medicine Bow National Forest's Pop Springs area (Slater, 1996 and 1997).

LPC's Saratoga operation attempts to limit its harvest activities to within a 300-mile radius of its Saratoga mill operation. The mill can and does occasionally obtain raw timber beyond this radius in areas where competing mills have closed and/or there is a need for local forest management (Slater, 1996). However, timber sale prices, labor expenditures, transportation costs, and other financial considerations vary the economical distance from where raw timber can be obtained.

Western Wood Products

Western Wood Products (WWP) is based in Medicine Bow. The company was established by Mr. Ray Levensgood in the Fall of 1995.

The company employed about eight Carbon County residents in 1995. The workforce included persons working at its mill, contract loggers, and other contract personnel (Levensgood, 1997). The workforce at Western Wood Products expanded to about 17 personnel in 1996.

Western Wood Products harvests and processes smaller diameter timber (6.9 inches or less) for the production and sale of various post and pole products. This commercial enterprise relies upon the availability of lodgepole pine and other woods. Western Wood Products does not compete with local lumber mills because the company does not produce sawtimber products. Nevertheless, WWP is an important component of the timber industry of Carbon County because it enables the local timber industry to make a more complete use of the timber products that are harvested from the Medicine Bow National Forest.

In order to provide an inventory of raw material, Western Wood Products negotiates some independent timber harvests with various private landowners. The company also derives smaller-diameter timber from larger timber harvest contracts that are secured by Louisiana-Pacific Corporation in Saratoga. In essence, WWP frequently purchases timber that would otherwise not be used for commercial wood products by LPC and private landowners.

The costs associated limit Western Wood Products to an area that is within about a 130-mile radius of its mill in Medicine Bow. Its source of raw timber primarily is obtained from the Medicine Bow National Forest.

Contribution to the Carbon County Economy

Direct Employment and Expenditures

The economic contribution of the three timber mill operations in Carbon County is presented on a cumulative basis in order to respect the confidentiality of the three mills operating in Carbon County. This brief evaluation is based upon detailed 1995 cost expenditure data that was obtained from local management representatives of these mills.

In 1995, the timber industry contributed approximately \$8.8 million of direct expenditures to the Carbon County economy (Table 4-1). About 91 percent of these expenditures (\$8,065,844) were for mill employee wages, independent or contract loggers, and other contract labor. The remaining expenditures were made to support general operations and administration.

Indirect Employment and Expenditures

Similar to other industries in Carbon County, the direct expenditures of the timber industry also ripple through the economy to provide other jobs and income to the service sector of the Carbon County economy. The impact of direct expenditures on other sectors of Carbon County's economy was estimated through the use of a regional input-output model for the Wyoming economy that was originally developed by the U.S. Forest Service and, subsequently, updated by the University of Wyoming Department of Agricultural Economics.

<p style="text-align: center;">TABLE 4-1 1995 DIRECT TIMBER INDUSTRY EXPENDITURES TO THE CARBON COUNTY ECONOMY</p>	
Type of Expenditure	Total \$ Expenditure
Employee Wages	\$ 3,115,641
Contract Loggers	4,363,367
Other Contract Labor	586,836
General and Administrative	749,624
TOTAL EXPENSES	\$ 8,815,468

Source: Slater, 1996; Hammer, 1997; Levengood, 1997; and Pedersen Planning Consultants, 1997

“Input-output models map the flow of dollars through a region’s economy providing information on how the individual sectors interact within the economy and how the local economy is linked with the outside world. They provide estimates on how a given amount of a particular economic activity will translate into jobs and income in the region. They consider both the direct effect on the individual sector and indirect effects on other sectors due to economic linkages within the local economy. As a result, input-output models can provide estimates of the economic effects on the whole regional economy, from a change in any one sector.” (University of Wyoming, Department of Agricultural Economics, 1996)

Through the use of the regional model for Wyoming, it is estimated that the input of \$8.8 million of direct expenditures by Carbon County’s timber industry in 1995 created some 139 jobs of indirect employment that generated approximately \$2.02 million in indirect income to other Carbon County residents.

Contribution to the Revenue Base of Carbon County

Through payments of property taxes and County license fees, the timber industry provides about \$48,369 in annual revenues to Carbon County. Indirect revenues to the County are also generated through the timber industry’s payment of sales taxes to the State of Wyoming. In 1995, the three mills contributed \$61,968 to the State of Wyoming.

Potential Constraints/Opportunities Impacting Future Timber Industry Activities

Availability of Raw Timber for Commercial Harvesting

Timber industry representatives in Carbon County indicate that the economic viability of their respective operations is significantly impacted by the uncertain availability of a raw timber supply for commercial harvest. Two primary considerations that are associated with the supply of raw timber impact economic viability are 1) the distance from timber harvest areas to the mill, and 2) the development of a long-term inventory.

As stated earlier, the Hammer Mill can operate economically if raw timber is obtained within 50 to 100 miles of its mill in Encampment. Conversely, the Louisiana-Pacific Mill in Saratoga can operate economically if raw timber is harvested up to 300 miles from Saratoga. The variability in these distances is, in part, dependent upon the alternate use of contract loggers and/or the availability of hauling trucks, as well as the age and condition of log hauling vehicles.

From FY 1976 through FY 1988, LPC annually harvested all of its raw timber, i.e., about 40 million board feet per year, from the Medicine Bow National Forest. The raw timber supplies that were available to the LPC were adequate to provide a steady level of raw timber for production.

However, the level of available timber supplies has declined steadily since FY 1989 (Figure 4-2 and Table 4-2). Only a limited amount of timber from the Medicine Bow National Forest has been sold to local timber mills between 1989 and 1997 (Slater, 1996; Hammer, 1997). As a result, greater layoffs have occurred more frequently in recent years. In addition, a greater uncertainty prevails concerning the future longevity of future timber mill operations.

In the early 1990's, the Hammer Mill invested in a scrag mill, which provides the Mill with the capability to process smaller diameter timber (less than 6.9 inches). The investment was based, in part, upon suggestions from the U.S. Forest Service that there was a need to cut greater volumes of smaller timber from selected areas of the MBNF. Due to lack of these supplies, the Mill was forced to close this part of its operation in January, 1995 (Hammer, 1997).

Local timber industry representatives have growing concerns regarding the lack of timber in the Medicine Bow-Routt National Forest that is available for commercial harvest. Their frustration is based upon industry's conclusion that a significant volume of timber resources could be made available for commercial timber sales. Mr. Dave Slater, a forester with Louisiana-Pacific Corporation in Saratoga, estimates that over 70 percent of the Medicine Bow National Forest represents a mature, or over-mature, forest. Slater believes that a more sound resource management objective would maintain between 25 and 50 percent of the MBNF timber stands in mature forest. Timber industry representatives in Carbon County fear that the lack of timber available for commercial harvest within an economical distance from their respective operations may be the demise of their operations unless more commercial timber sales in the Medicine Bow National Forest are made by the U.S. Forest Service.

The development of a longer-term inventory is essential to the continued operation of both mills in Carbon County. The availability of inventory provides greater continuity and efficiency in production. In order to maintain an adequate inventory, local mills should have two years of harvest under contract at any given time (Slater, 1997). With a reasonable inventory, mill managers can better plan workforce and production activities, enhance marketing opportunities, increase profit potential, and sustain continued mill employment. Temporary layoffs of the operational workforce at both mills occur more frequently when raw timber supplies are limited. Timber industry representatives indicate that 25 mmbf are needed to sustain one full-time production shift at LPC's Saratoga mill while 8 mmbf are needed to sustain one full-time production shift at the Hammer Mill (Slater, 1997).

The size of potential timber sales is also important economic consideration to the timber industry. For example, Louisiana-Pacific representatives indicate that it needs, at least, 0.5 million board feet to become involved in any timber sale within a 300-mile radius of its Saratoga mill (Slater, 1996). In contrast, the Hammer Mill needs: 1) smaller timber sales that will enable the Mill to be competitive, or 2) an opportunity to gain a portion of the harvest obtained from larger timber sales.

The U.S. Forest Service, in cooperation with the timber industry, should examine why some timber sales do not sell and evaluate the availability of timber for smaller wood products. The availability of smaller timber is expected to increase over the next 10 to 20 years. Forested areas that were harvested in the 1940's and 1950's will grow into that size class (Carroll, 1998).

FIGURE 4-2
ANNUAL USFS TIMBER SALES AND HARVESTS
MEDICINE BOW NATIONAL FOREST
FY 1976-FY 1996

FIGURE NOT AVAILABLE

TABLE 4-2
ANNUAL USFS TIMBER SALES AND HARVESTS
MEDICINE BOW NATIONAL FOREST
FY 1976-FY 1996

TABLE NOT AVAILABLE

Sustainability of National Forest Areas

Results from the resident survey and public comments received during public meetings indicate that roughly half of Carbon County's resident population desires greater conservation of the water, timber and wildlife resources of the Medicine Bow-Routt National Forest. Recreational and visual opportunities, aesthetic values, as well as a growing concern for natural resources in the Forest, probably represent the basis of this important community concern.

The sustainability of the MBNF can be defined in many ways. Discussions with USFS representatives from the MBNF suggest that sustainability is the balancing of natural resources such as surface water and wildlife habitats with continuing public demands for recreation, general public access, and the harvest of timber resources. Through legal authority granted by several landmark environmental statutes, USFS representatives indicate that it regularly uses various resource management targets in an effort to integrate forest health needs with other management objectives associated with wildlife habitat and water quality.

Carbon County supports the use of resource management targets for each of the various resource considerations that are made by the U.S. Forest Service. The County also believes that general targets for timber harvests need to be re-examined in light of other resource management considerations.

From this perspective, Carbon County recommends a reasonable resource management target is for the U.S. Forest Service to offer an annual average of roughly 33 MMBF of sawtimber from several national forests within 300 miles of Saratoga, Wyoming (Figure 4-3). Commercial sawtimber demands could be addressed from a combination of harvests in the:

- Medicine Bow-Routt National Forest,
- White River National Forest,
- Arapahoe National Forest,
- Roosevelt National Forest,
- Pike National Forest, and,
- San Isabel National Forest.

Other timber resources are also located on State and private lands in Wyoming.

When timber industry demands are viewed in a regional context, community concerns for natural resource conservation of the MBNF can be more adequately addressed. If the USFS pursues this regional management target, less pressure will be imposed upon the natural resources of the Medicine Bow National Forest. Such an approach will foster a greater conservation of resources within the Medicine Bow-Routt National Forest and, at the same time, generate less uncertainty concerning the future availability of sawtimber for the timber industry of Carbon County.

Timber Sale Prices

U.S. Forest Service and State of Wyoming fees that are associated with the use of public lands for commercial timber harvests continue to increase. A 1997 bid announcement made by the State of Wyoming for a commercial timber sale near Mountain Home, Wyoming required prospective bidders to offer minimum bids of \$228 per 1,000 board feet (Hammer, 1997). Recent minimum bids associated with timber sales in the Medicine Bow National Forest more recently increased to roughly \$250 per 1,000 board feet (Reedy, 1997).

Recent minimum bid prices represent a significant increase from minimum bid requirements in the early 1980's. For example, minimum bid prices for timber sales in the Medicine Bow National Forest averaged about \$6.20 per 1,000 board feet in 1985. Such increases, combined with the decreased availability of raw timber, have increased the cost of harvesting timber.

Figure 4-3
Regional U. S. Forests
Within 300 Miles of Saratoga, Wyoming

In Carbon County, increased minimum bid prices also impact the extent of competition in the local timber industry. A larger corporate operation such as Louisiana-Pacific Corporation has greater access to investment capital. As a result, the Corporation is more able to pass through increased investment costs in its wholesale pricing structures.

In contrast, the Hammer Mill has less capability to secure greater investment capital. Rising minimum bids reduce the capability of the Hammer Mill to compete with larger corporate operations such as Louisiana-Pacific. For commercial timber sales, commercial bidders are typically required to make an initial down payment and provide performance bond guarantees before harvesting is initiated, as well as pay stumpage fees when timber is brought to the mill for processing. Consequently, a significant outlay in investment capital is required to bid and participate in a commercial timber sale that is offered by the U.S. Forest Service or the State of Wyoming.

Commodity Prices and the Relationship to Gross Margin

Once timber is processed for sale to the wholesale market, a profitable sale is derived from a favorable gross margin. For the two lumber mill operations in Carbon County, the important gross margin is the difference between the cost of purchasing, harvesting, and processing raw timber vs. the current commodity price for a given type of processed lumber that is paid by wholesale buyers.

Potential Industry Expansion

In the next 20 years, no significant expansion of the two existing lumber mill operations is anticipated. However, a local post and pole operation in Medicine Bow is seeking to expand its facilities to increase the value of its products.

LPC representatives indicate that it would consider the establishment of a finger-joint plant, which would employ 25 to 30 persons, within its existing mill complex in Saratoga if its mill could operate at full capacity. For this to occur, the LPC mill would need to annually harvest about 25 million board feet (MMBF) of raw timber (Slater, 1996).

A concern of Carbon County is to keep the two sawmill operations, as well as local post and pole operators, economically viable. With a decline in the amount of timber harvested from the Medicine Bow-Routt National Forest, timber mills continue to harvest timber at a growing distance from Carbon County. Carbon County fears that this trend will gradually diminish the number of workers, e.g., contract loggers and truck drivers, that is employed by the timber industry.

At the same time, the County favors any prospective timber industry expansion, e.g., finger-joint plant by LPC and scrag plant at Hammer Mill, that would generate added economic value to timber resources that are harvested and processed in Carbon County.

MINING INDUSTRY

General

The mining activities in Carbon County that presently comprise a part of the County's regional economic base include surface and underground coal mining in the Hanna Basin. These activities are evaluated in greater detail in the following paragraphs.

Expanded investments associated with the mining and production of uranium are expected to begin by the year 2000. However, these operations are presently generating limited volumes of production. The limited production of uranium in Carbon County is generated primarily from lower prices in the international market.

At least three companies in Carbon County are initiating projects that involve the mining and/or beneficiation of various precious metals. However, these projects are only in the early stage of development at the time of this report.

Underground Coal Mining

General Status

Cyprus-Shoshone, a subsidiary of Cyprus Amax in Englewood, Colorado, represents the only underground coal mining operation in the State of Wyoming. This operation is based about five miles northeast of Hanna, Wyoming (Figure 4-4). The mine was formerly owned and operated by Carbon Coal Company until about 1987 when it was sold to Cyprus Amax.

Since the late 1980's, the Cyprus-Shoshone mine has been plagued with various market and production issues that have left the future operation of this mine uncertain. In 1997, a combination of a reduced labor force, increased employee productivity and morale, and aggressive mine management strengthened the possibility that the existing mine might be expanded in 1998 and 1999. However, at the time of this report, the closure of the Cyprus-Shoshone mine appears imminent.

Available coal resources in two remaining longwall panels at the south end of the existing mine will be extracted through about mid-1999 (Tanner, 1997). Cyprus-Shoshone representatives estimate there is about 5.1 million tons of mineable coal remaining in these panels.

Cyprus-Shoshone completed geotechnical investigations in the nearby Barrel Springs area in 1997 and evaluated market opportunities to determine the feasibility of expanding mining activity to this area. Cyprus-Shoshone representatives estimate there is a potential coal reserve of about 30 million tons of coal in this area. In order to develop this area and extract the available resource, Cyprus Amax will need to make an initial capital investment of approximately \$10 million. The desirability of this investment was reviewed in the context of potential return-on-investment, as well as the potential financial return that could be derived from alternate investments at other Cyprus Amax mines within and outside of the United States.

Contribution to the Carbon County Economy

Direct Employment and Expenditures

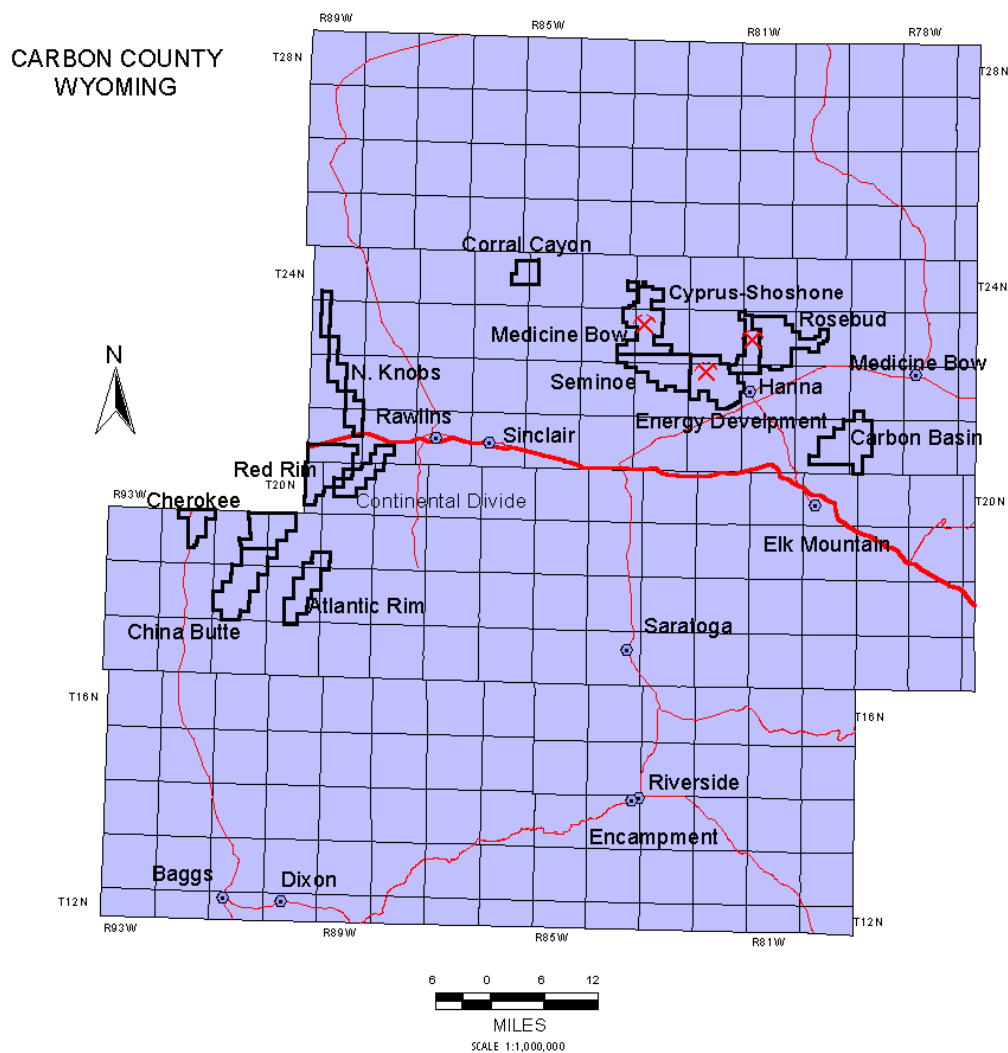
Available data for 1995 indicates that the Cyprus-Shoshone mine annually contributes about 128 full-time jobs and roughly \$12.3 million in direct expenditures to the Carbon County economy; about \$8.1 of these expenditures represent employee salaries and wages. The remaining \$4.2 million in local expenditures include the purchase of materials, equipment, supplies, and services that are needed to support mine operations (Tanner, 1996 and 1997).

Indirect Employment and Expenditures

It is important to note that the average annual wages earned by Cyprus-Shoshone employees, i.e., about \$58,000 per employee, represents some of the higher salaries paid to employed persons in Carbon County. This higher wage level accounts for a somewhat higher contribution to indirect expenditures in Carbon County.

The impact of direct expenditures on other sectors of Carbon County's economy was estimated through the use of a regional input-output model for the Wyoming economy that was originally developed by the U.S. Forest Service and, subsequently, updated by the University of Wyoming Cooperative Extension Service.

EXISTING COAL MINING OPERATIONS and COAL RESOURCES in CARBON COUNTY



LEGEND

Transportation
Interstate
State Highways

Townships
Carbon County
Cities and Towns

Coal Resources
Coal Projects or Proposed Mines
Mines

Source:
1990 Census Tiger Data 1:1,000,000
BLM 1:100,000
Union Pacific

FIGURE 4-4

“Input-output models map the flow of dollars through a region’s economy providing information on how the individual sectors interact within the economy and how the local economy is linked with the outside world. They provide estimates on how a given amount of a particular economic activity will translate into jobs and income in the region. They consider both the direct effect on the individual sector and indirect effects on other sectors due to economic linkages within the local economy. As a result, input-output models can provide estimates of the economic effects on the whole regional economy, from a change in any one sector” (University of Wyoming, Department of Agricultural Economics, 1996).

The application of the input-output model to 1995 direct expenditures by the underground coal industry suggest that the Cyprus-Shoshone mine operation in 1995 generated approximately \$2,901,504 dollars in indirect expenditures within the Carbon County economy. Further, these indirect expenditures generated about 168 jobs in the service sector of the County's economy.

Potential Economic Impact of Anticipated Mine Closure

The \$12.3 million in annual direct expenditures to the local economy are expected to continue through, at least, 1999. Existing employment is expected to decline to about 80 persons in 1998, 10 employees in 1999, and a minimal maintenance crew of about 3 persons in 1999 (Tanner, 1997).

The consequences of the anticipated mine shutdown are significant. For example, a reduction of the labor force from 128 full-time employees in 1996 to approximately 80 employees would annually reduce labor expenditures to about \$4.6 million. This potential reduction in mining employment and wage expenditures would significantly impact potential indirect expenditures in the Carbon County economy.

A complete loss of the entire labor force and mine operations would result in a loss of about \$12.1 million per year in direct expenditures within the Carbon County economy. Again, the loss of these expenditures would represent a serious loss in direct employment, as well as indirect jobs and expenditures in the economy.

Contribution to the Revenue Base of Carbon County

A recently completed Southwest Evaluation Study, prepared by the U.S. Bureau of Land Management, included, in part, an evaluation of how Wyoming mineral revenues are distributed in Carbon, Lincoln, Sublette, Sweetwater, and Uinta counties. The University of Wyoming, Department of Agricultural Economics, developed this information. Study results indicate that ad valorem production taxes, ad valorem property taxes, and sales taxes generated from underground and surface coal production in Carbon County yielded approximately \$4,299,311 to local revenues in Carbon County. Approximately \$2,814,038 was distributed to public schools and some \$1,485,273 was distributed to local government (State of Wyoming, Department of Agricultural Economics, 1996).

In 1995, Cyprus-Shoshone paid almost \$2.7 million dollars to Carbon County in ad valorem, property and sales taxes. Consequently, revenues gained from underground coal mining represented almost 62 percent of the total revenues derived from surface and underground coal mining production in Carbon County.

Underground coal production activities in Carbon County also generate some severance tax revenues to Carbon County. The statutory requirements associated with the distribution of statewide severance tax revenues are found in Title 39, Section 6-305 of the Wyoming State Statutes.

In FY 1996, approximately \$649,306 of severance tax revenues were received by Carbon County and its ten municipalities. The distribution of the revenues is summarized as follows (Wyoming Department of Revenue, 1997).

<u>Local Government Agency</u>	<u>Revenue Received</u>
Carbon County	\$161,436
Baggs	\$ 9,212
Dixon	2,371
Elk Mountain	5,893
Encampment	16,595
Hanna	36,442
Medicine Bow	13,175
Rawlins	317,683
Riverside	2,879
Saratoga	66,686
Sinclair	16,934
Municipal Government Total	<u>487,870</u>
TOTAL	\$649,306

A State Department of Revenue representative reports that there is no practical way to determine what proportion of these severance tax revenues were derived from underground coal production in Carbon County (Burton, 1997).

Potential Constraints/Opportunities Impacting Underground Coal Mining Activity

The present status of Cyprus-Shoshone Mine operations near Hanna provide a clear example of some of the internal and external factors that influence corporate investment decisions related to the development of potential mining opportunities. Similar to most industries, there are several considerations that are essential to industry evaluations of future investment opportunities. The primary considerations include the cost and volume of production, labor productivity, sales price, and taxes.

Cost of Production

The overall cost of production at Cyprus-Shoshone is roughly four times the cost of surface mining in the Powder River Basin. Coal mining operations in this area, which include two surface mining operations of Cyprus Amax Corporation, regularly compete for some of the same Midwest utility markets. This factor poses a significant economic constraint that must be countered by the volume of production, labor productivity, and the sales price of the coal.

Production Volumes and Labor Productivity

In 1996, Cyprus Shoshone increased its annual production to 2.6 million tons of coal (Tanner, 1997). The coal produced at the Cyprus-Shoshone mine is a higher Btu coal that contains between 8,500 and 10,200 British thermal units per pound. The 2.6 million tons of coal represents the greatest annual volume of coal that has been extracted at the Cyprus-Shoshone mine. This level of production has been achieved despite the fact that the mine operation has gradually been reduced to a labor force of about 130 personnel. Since 1993, the overall productivity of labor at Cyprus-Shoshone has steadily increased and more than doubled (Tanner, 1997). An increased volume and rate of production brings a positive outlook to corporate executives because this factor increases the possibility of increased profitability for mine development/expansion as long as market prices can keep pace with the cost of production.

Sales Price

The sales price of steam coal can be extremely volatile and, clearly, has a significant influence upon the overall gross margin of Cyprus Amax's Cyprus-Shoshone mine. Average prices on the coal spot market for 10,500 Btu/lb. coal (FOB mine) ranged between \$11.50 and \$13.50 per short ton in the first week of 1997. In contrast, similar prices from the second through the fourth quarters of 1996 averaged between \$12.25 ton in 3Q 1996 to \$12.40 in the 2Q 1996 (Coal Week, 1997).

In underground coal mining, a one dollar difference in overall cost or revenue is significant to the overall gross margin (Tanner, 1996). In order to help stabilize revenues and ensure a long-term market, large orders of coal produced are sold at prices that are frequently less than average spot market prices. However, lower revenue per ton from these markets are offset somewhat by higher prices to users of significantly smaller volumes.

Ad Valorem and Severance Taxes

Ad valorem and severance taxes represent another important factor that influences mine investment decisions. The tax base used to calculate these taxes are based upon the total income derived from the sale of the extracted coal, which reflects the sales price of the coal, divided by the volume of tons extracted.

A recent comparative study was made of state taxes, royalties, and workers' compensation in seven coal-producing states. This study, which was prepared by Price Waterhouse for the State Technology and Energy Authority, evaluated, in part, the tax burdens associated with coal production. Price Waterhouse concluded, in part, that the State of Wyoming "... *has the second highest total state tax burden on coal production*" (Price Waterhouse, 1996). From an economic perspective, these regional differences are significant because both Utah and Colorado represent potential investment areas for companies such as Cyprus Amax where 1) corporate mine investments have already been made; and, 2) mine expansion opportunities are available.

Potential Industry Expansion

Cyprus-Shoshone Plans

By the year 2002, reclamation of the existing longwall panels at the Cyprus-Shoshone mine will likely have been completed. However, monitoring of the reclaimed area will continue through, at least, the year 2012 in order to satisfy the requirements of the U.S. Office of Surface Mining. The State Department of Environmental Quality, Land Quality Division, will be monitoring these activities.

A potential expansion of underground coal mining activities in the adjacent Barrel Springs area was recently considered by Cyprus Amax. This proposal included plans to develop and mine some 960 acres of land northeast of the existing Cyprus-Shoshone mine (Fortson, 1997). However, Cyprus Amax representatives have indicated that this project will not be pursued in the near future. Such an expansion is dependent upon various factors such as market demand and price. Consequently, there is no long-term commitment by Cyprus Amax to this project. There may be other known reserves near the existing mine where Cyprus Amax anticipates underground coal mining activity during the next 20 years (Fortson, 1997). However, the development of these resources by Cyprus Amax appears doubtful at the time of this report.

Arch Coal, Inc. Plans

If governmental approval is given for the development of the Carbon Basin (about 12 miles southeast of Hanna), underground coal mining activity may eventually occur in the Carbon Basin after surface coal reserves are initially extracted by Arch of Wyoming. The parent company of Arch of Wyoming, Arch Coal, Inc., has underground mining capability and indicates that it plans to pursue this development opportunity (Turner, 1997).

Arch Coal envisions the development of a test mine in the Carbon Basin in 2003 and 2004. Such testing would assess the potential for extracting underground coal reserves from the proposed Elk Mountain Mine. If anticipated results are confirmed via field-testing, Arch Coal, Inc. expects that underground mining in the Carbon Basin would occur between 2005 and 2033. Arch Coal, Inc. estimates that underground mining activities would generate

employment for approximately 240 underground coal miners (Turner, 1997). In economic terms, this new employment could generate about \$12.7 million of new direct expenditures in the Carbon County economy.

Surface Coal Mining

General Status

Existing Production

Arch of Wyoming, Inc., an indirect subsidiary of Arch Coal, Inc., has been operating in Carbon County since about 1970. Arch Coal, Inc., which is based in St. Louis, Missouri, represents a recent merger of the former Arch Mineral Corporation and Ashland Coal Company.

Arch of Wyoming is the sole surface coal mining company in Carbon County and currently operates two surface coal mines in Carbon County: Seminole II and Medicine Bow. The Seminole Mine is situated about three miles north of Hanna. The Medicine Bow mine is located southeast of the Seminole Reservoir and about 17 miles north of State Highway 30.

Coal mining at the Medicine Bow and Seminole II mines extracts a higher Btu coal, which contains between 8,500 and 10,200 British thermal units per pound. Production during the 1995-1997 period is summarized in Table 4-3.

The same rate of production from each of these production sources in 1997 is anticipated during the 1997-2000 period (Turner, 1997).

TABLE 4-3 TOTAL SURFACE COAL PRODUCTION ARCH OF WYOMING 1995-1997 (IN SHORT TONS)			
Source	1995	1996	1997
Medicine Bow Mine	713,737	1,146,392	1,584,406
Seminole II Mine	200,932	230,995	94,771
Total Surface Mines	914,669	1,377,387	1,679,177
Archveyor	803,057	364,556	500,231
Total Production	1,717,726	1,741,943	2,179,408

Source: Arch of Wyoming, Inc., 1998

Proposed Expansion into the Carbon Basin

Arch of Wyoming also plans to establish a new surface mine in the Carbon Basin. Potential reserves in this area offer the potential to extract some 20 million tons of coal via surface mining activities and an additional 10 million tons via the Archveyor system over an 11-year mining period.

The proposed development of the Carbon Basin mine requires that important regulatory decisions are made before Arch can proceed with its coal development plans.

- A revision of the U.S. Bureau of Land Management's Medicine Bow-Divide Resource Management Plan will need to be made. This revision will, in part, require the preparation and review of an environmental assessment. If the Management Plan is amended, Arch of Wyoming hopes to receive BLM approval of the project by the summer of 1998.

- An application for a mining permit will need to be prepared by Arch of Wyoming and subsequently approved by the State Department of Environmental Quality. Arch would like to receive approval not later than the end of 1999 in order to ensure continuity in mining operations.

With the approval by the Bureau of Land Management and the State Department of Environmental Quality Control, Arch of Wyoming would require about nine months to relocate its existing dragline at the Medicine Bow mine to the proposed Carbon Basin area during the year 2000. At the same time, Arch of Wyoming would also begin construction of a new administrative and administrative-shop complex, as well as roads and power distribution lines, in the Carbon Basin. By the year 2001, proposed plans anticipate the beginning of full production (Turner, 1997).

Contribution to the Carbon County Economy

Direct Employment and Expenditures

In 1995, the two mines operated by Arch of Wyoming provided employment for approximately 72 full-time employees. This employment generated about \$3.8 million in local wages, salaries, and related employee benefits. In 1996, the workforce expanded to 89 full-time employees and direct labor expenditures increased to roughly \$5.0 million (Turner, 1997).

Other expenditures made in the Carbon County economy included purchases of fuel, utility services, e.g., electrical power, and other miscellaneous items. In 1995, these expenditures represented an additional \$2.09 million. Other direct expenditures made by Arch of Wyoming in 1995 generally included about \$921,000 for utilities, e.g., electrical power; roughly \$969,000 in fuel purchases; and approximately \$200,000 in other miscellaneous direct expenditures.

Cumulative direct expenditures demonstrate that Arch of Wyoming contributed approximately \$5.89 million to the Carbon County economy in 1995. Additional labor expenditures in 1996 increased the contribution of surface mining activities to roughly \$7.09 million in annual direct expenditures to the Carbon County economy.

Indirect Employment and Expenditures

Similar to other industries in Carbon County, the direct expenditures of the surface coal industry generate other jobs and income to the service sector of the Carbon County economy. In order to quantify this impact, direct industry expenditures in 1996 were applied to a regional input-output model for the Wyoming economy that was originally developed by the U.S. Forest Service and, subsequently, updated by the University of Wyoming Cooperative Extension Service.

“Input-output models map the flow of dollars through a region’s economy providing information on how the individual sectors interact within the economy and how the local economy is linked with the outside world. They provide estimates on how a given amount of a particular economic activity will translate into jobs and income in the region. They consider both the direct effect on the individual sector and indirect effects on other sectors due to economic linkages within the local economy. As a result, input-output models can provide estimates of the economic effects on the whole regional economy, from a change in any one sector” (University of Wyoming, Department of Agricultural Economics, 1996).

Through the use of the regional model for Wyoming, it is estimated that the input of \$7.09 million in direct expenditures by Carbon County’s surface mining industry in 1996 created some 82 jobs of indirect employment that generated approximately \$1,420,428 of indirect income to other Carbon County residents.

Average annual wages earned by Arch of Wyoming employees, i.e., about \$52,777 per employee, represents some of the higher salaries paid to employed persons in Carbon

County. This wage level accounts for a somewhat higher contribution to indirect expenditures in Carbon County.

Economic Implications of the Proposed Elk Mountain Mine

If the intended mine expansion plans of Arch of Wyoming are realized, the economy of Carbon County will be significantly strengthened beginning in the year 2001. By the end of the year 2000, the mining of existing reserves at the Seminole II and Medicine Bow mines will near completion. With the availability of a new mine expansion area, continued employment of the existing 89 full-time employees would occur. Continued employment of the existing workforce would generate approximately \$5.0 million in direct labor expenditures.

In addition, the expansion into the Carbon Basin will require the Arch of Wyoming's expenditure of some \$7.0 to 8.0 million for the relocation and repair of the existing dragline at the Medicine Bow mine. However, such work will likely involve the use of specialized contractors that are based in Gillette or Casper, Wyoming. Consequently, this expenditure will generate limited economic benefits to Carbon County.

However, significant new transportation expenditures will be associated with the development of the Carbon Basin. The existing Medicine Bow and Seminole II mines are supported by the availability of rail spurs within the existing mine complexes. In contrast, mined coal from the Carbon Basin will need to be trucked to the existing rail spur at the Seminole II complex. Arch of Wyoming estimates that about 20 trucks will be needed to support the hauling of mined coal to the rail spur north of Hanna. An average of three employees is anticipated to operate and maintain each truck.

If Arch Coal, Inc. pursues underground mining in the Carbon Basin, a new railroad spur would be developed from Medicine Bow to the Carbon Basin between 2003 and 2005. Upon completion of the railroad spur in about 2005, the need for truck transportation to support surface mining operations would be negated near the end of 2005. In the absence of underground mining, truck transportation would be required through about 2012.

In terms of economic impact, new truck transportation expenditures are expected to add about \$2.50 per ton to production costs. On an annual basis, transportation requirements will require an expenditure of about \$3.0 million for truck hauling between the existing rail spur north of Hanna to the Carbon Basin. Arch of Wyoming representatives believe that this will generate about 60 new transportation jobs associated with truck driving and related vehicle maintenance services. It is anticipated that such employment will be derived from one transportation services contract to a regional trucking company, as well as related subcontracts to other smaller trucking companies (Turner, 1997). Regardless of contract arrangements, a trucking fleet will need to be based in Carbon County.

In a cumulative sense, surface mining activities in the Carbon Basin will potentially generate about \$12.0 million in direct annual expenditures each year to the Carbon County economy. In its absence, the economy will lose an existing surface mining employment and labor expenditures that represent about \$5.0 million in direct expenditures. In addition, the potential opportunity to expand and stabilize the local transportation industry would not be gained. As stated earlier, some 60 potential jobs related to local ground transportation would reflect a potential economic gain of about \$3.0 million per year of new direct expenditures to the County economy.

Contribution to the Revenue Base of Carbon County

As stated earlier, a recently completed Southwest Evaluation Study, prepared by the U.S. Bureau of Land Management, included, in part, an evaluation of how Wyoming mineral revenues are distributed in Carbon, Lincoln, Sublette, Sweetwater, and Uinta counties. The University of Wyoming, Department of Agricultural Economics, developed this information. Study results indicate that ad valorem production, ad valorem property, and sales tax generated from surface and underground coal production in Carbon County yielded approximately \$4,299,311 to local revenues in Carbon

County. Approximately \$2,814,038 was distributed to public schools and some \$1,485,273 was distributed to local government (State of Wyoming, Department of Agricultural Economics, 1996).

It is estimated that Arch of Wyoming contributed approximately \$1.6 million in revenues to Carbon County. This significant contribution represents about 38 percent of the total Carbon County revenues that are generated via surface and underground coal mining.

Surface coal production activities in Carbon County also generate some severance tax revenues to Carbon County. The statutory requirements associated with the distribution of statewide severance tax revenues are found in Title 39, Section 6-305 of the Wyoming State Statutes.

In FY 1996, approximately \$649,306 of severance tax revenues were received by Carbon County and its ten municipalities. The distribution of these revenues was as follows (Wyoming Department of Revenue, 1997).

<u>Local Government Agency</u>	<u>Revenue Received</u>
Carbon County	\$161,436
Baggs	\$ 9,212
Dixon	2,371
Elk Mountain	5,893
Encampment	16,595
Hanna	36,442
Medicine Bow	13,175
Rawlins	317,683
Riverside	2,879
Saratoga	66,686
Sinclair	16,934
Municipal Government Total	<u>487,870</u>
TOTAL	\$ 649,306

A State Department of Revenue representative reports that there is no practical way to determine what proportion of these severance tax revenues were derived from surface coal production in Carbon County (Burton, 1997).

Potential Constraints/Opportunities Impacting Surface Coal Mining Activity

Various factors influence the profitability of existing surface mining operations. The economic feasibility of a potential expansion to the Carbon Basin is guided by similar factors, as well as other considerations that impact corporate investment decisions. The primary considerations that are believed to be particularly relevant to Arch Coal, Inc. include its past investments in Carbon County, the cost of production, production volumes, and sales price.

Past Investment Commitments in Carbon County

One of the advantages that influence corporate investment decisions of Arch Coal, Inc. is its history with Carbon County. Arch Coal is a subsidiary of the former Arch Mineral Company, which began its surface mining development activities in Carbon County around 1970. Later, Arch Mineral expanded its mining development activities to the Midwest and southeast United States. Consequently, Arch Mineral's past mining production in Carbon County has contributed a source of corporate revenue that has helped enable mining development investments in other parts of the continental United States.

Some of the executives guiding the investment decisions of the company are well acquainted with the coal reserves of Carbon County. Some have been involved in the mining of coal in Carbon County and/or managed mine extraction activities at Arch of Wyoming earlier in their professional careers. The historical growth of Arch Coal, Inc., as well as the personal professional experiences of some corporate executives, are believed to somewhat influence future investment decisions associated with Arch of Wyoming. Company representatives

indicate that the proposed Carbon Basin project represents one of the more significant mining development projects for Arch Coal, Inc. during the next decade (Turner, 1997).

Cost of Production

The overall cost of production for surface mining in Carbon County is higher than other surface mining competitors in the Powder River Basin. Surface mining in the Hanna area requires the removal of a greater volume of overburden in order to recover surface coal reserves. For example, Arch of Wyoming is required to remove an average of about seven cubic yards of overburden to remove one ton of coal. In the Powder River Basin, surface mining companies typically remove only two cubic yards of material to extract one ton of coal (Turner, 1997).

Existing mining operations at its Seminoe II and Medicine Bow mines are also supported by the availability of existing rail spurs that enable Arch of Wyoming to conveniently load coal product into outgoing rail cars. However, as stated earlier, proposed mining activity in the nearby Carbon Basin will require local ground transport, i.e., truck hauling, from the Carbon Basin to the existing rail spur at the Seminoe II mine. Such requirements will add \$2.50 per ton to the production of coal from the Carbon Basin area. This added cost to the overall cost of production makes the Carbon Basin project a “....*marginal investment*” for Arch Coal, Inc. (Turner, 1997).

Productivity and Production Volumes

Annual coal production by Arch of Wyoming was about 1.7 million tons per year in 1995. The efficiency of surface mining activities has remained generally stable in recent years. However, increased productivity and production volumes have been achieved through the mining of exposed coal crop in the highwall of surface resources. Highwall mining has been carried out through the use of Arch Coal, Inc.’s patented mining system known as Archveyor.

“The Archveyor combines a remote controlled continuous miner with an attached continuous haulage system and outside loadout vehicle. Just as in a conventional auger mining operation, the continuous miner will enter an exposed coal seam from the highwall and mine down the dip of the bed. The mined coal is then transported out of the hole by the continuous haulage system to the outside loadout vehicle where it is trans-loaded into trucks for transportation to the stockpiles. All operations are directed from controls in the loadout vehicle, with no personnel activity ‘underground’. Mining is performed by advancing the machine down the pit from hole to hole. Each hole is punched from the open pit floor” (Arch of Wyoming, 1997) .

Through the use of this process, Arch of Wyoming is able to recover additional reserves from coal seams that are developed through its regular surface mining practices. In 1997, approximately 0.5 million tons (about 23 percent) of total production by Arch of Wyoming (about 2.1 million tons) was achieved through the use of the Archveyor process. Consequently, greater efficiency has occurred through the use of this process. Increased efficiency in the volume and rate of production can be expected to improve long-term profitability.

Market Demand

The volume of future production by Arch of Wyoming must also be viewed in the context of national demand and regional production in Carbon County. Arch of Wyoming believes that the national market for steam coal can annually absorb about four to six million tons from the Hanna area (Turner, 1997). At the time of this report, the level of production by Arch of Wyoming must take into account anticipated volumes of production by its underground coal mining competitor, Cyprus Amax. With the anticipated closure of the Cyprus-Shoshone mine, an expanded market potential may become available.

Sales Price

Similar to Cyprus-Shoshone, Arch of Wyoming provides steam coal to various industrial and commercial users. Missouri Public Service, the Tennessee Valley Authority, and Western Fuel are representative of the larger consumers from the electrical power industry. Smaller consumers include organizations such as the University of Wyoming at Laramie, which fuels boilers with the higher Btu coal.

The sales price of steam coal can be extremely volatile and clearly has a significant influence upon the overall gross margin of Arch of Wyoming's mine operations. Average prices on the coal spot market for 10,500 Btu/lb. coal (FOB mine) ranged between \$11.50 and \$13.50 per short ton in the first week of 1997. In contrast, similar prices from second through fourth quarter of 1996 averaged between \$12.25 ton in 3Q 1996 to \$12.40 in the 2Q 1996 (Coal Week, 1997).

In coal mining, a one dollar difference in overall cost or revenue is significant to the overall gross margin (Tanner, 1996). In order to help stabilize revenues and ensure a long-term market, coal produced by Arch of Wyoming is sold at higher volume for prices that frequently are less than average spot market prices. However, lower revenue per ton from these markets are offset somewhat by higher prices to users of significantly smaller volumes.

Potential Industry Expansion

As stated earlier, ongoing surface mining activities are occurring north and west of Hanna at the Seminole II and Medicine Bow mines. Planned surface mining activities in the Carbon Basin are proposed to take place by the year 2001.

While the focus of future surface mining opportunities lies in the Carbon Basin, several other long-term coal development prospects are located in Carbon County. The Medicine Bow-Divide Resource Management Plan identified five other potential coal development areas on federal lands in Carbon County:

- Red Rim,
- Indian Springs,
- China Butte,
- Atlantic Rim, and,
- Hanna Basin.

The general size of potential reserves ranges between 25 and 191 million tons (U.S. Bureau of Land Management, 1988). The potential volume that could be economically recovered from these areas was not determined.

No mining interests have expressed any plans to develop these coal deposits. However, discussions with industry representatives indicate that they are aware of these potential mining opportunities. With the availability of a mining workforce in Carbon Basin, other coal reserves in Carbon County will likely be evaluated prior to the completion of surface mining activities around the year 2012 (Turner, 1998).

AGRICULTURE

Approximately 2,721,000 acres of land in the County are committed to cattle ranching and sheep production. In addition, some 171,000 acres of land are used for the production of various crops such as hay, winter wheat, and oats (Wyoming Agricultural Statistics Service, 1996).

In terms of statewide production, Carbon County ranks fourth in Wyoming's overall production of cattle, eighth in the production of breeder sheep, second in the production of hay, and seventh in the production of winter wheat. The production of oats is limited and ranks about 20th in Wyoming's overall production.

In the following paragraphs, the three components of Carbon County's agricultural industry are evaluated in the context of cattle ranching. Hay production is typically part of most cattle operations in the County. There are several ranches in Carbon County that are involved sheep and lamb production. However, most of the sheep production in the County is carried out as a supplement to the income that is derived from cattle ranching. In light of these operational characteristics, the combined description enables the calculation of a more accurate evaluation of ranching's contribution to the Carbon County economy.

Results from the Ranch Survey indicate that local ranches also support other livestock such as horses, pigs, and poultry. For example, survey results suggest that horses are maintained on, at least, 31 percent of all Carbon County ranches. About five percent of the ranches raise pigs; another three percent contain some poultry production.

General Status

While imported cattle predated the arrival of the Transcontinental Railroad in Wyoming, the railroad established a new and more efficient mode of transportation of cattle to markets in the East (Abt Associates, Inc., 1975). In 1868, the coming of the railroad to what is now known as Carbon County enabled cattle ranching to become the dominant agricultural activity in Carbon County. The significance of cattle ranching to agriculture and the overall Carbon County economy continues almost 130 years later.

In 1992, the U.S. Census of Agriculture reported that there were approximately 287 ranches and farms in Carbon County. The State of Wyoming's Cooperative Extension Service office in Rawlins estimates that virtually all of the agricultural enterprises represent cattle ranching and that the number of ranches has remained generally stable during the 1992-1997 period (Reynolds, 1997). This conclusion is substantiated by available information from the U.S. Department of Commerce, Regional Economic Information System (see Table 4-4).

TABLE 4-4 NUMBER OF AGRICULTURAL PROPRIETORS CARBON COUNTY, 1990 THROUGH 1994	
Year	Number of Proprietors
1990	279
1991	281
1992	288
1993	286
1994	286

Source: U.S. Bureau of Economic Analysis, 1995

The number of ranches in Carbon County's cattle industry has remained generally stable since 1992. However, results from the Ranch Survey (see Chapter Three) indicate that roughly seven percent of Carbon County's ranchers may be considering retirement and/or the sale of their ranches during the next one to five years.

In terms of production, Carbon County ranks fourth in Wyoming's overall production of cattle. Carbon County ranchers produced about 105,000 head of cattle in 1995. This level of production declined slightly to roughly 102,000 cattle in 1996. Some 62,000 cows produced calves in both 1995 and 1996 (Wyoming Agricultural Statistics Service, 1996).

In Carbon County, ranchers sell young feeder calves and/or yearlings, or hold calves up to an 18-20 month period (Ellis, 1997). The majority of ranchers in the County sell feeder calves, which are sold at the age of seven to eight months. The principal buyers are representatives of feedlots who purchase

the cattle via regional auctions, video sales, or direct purchases from individual Carbon County ranchers.

Contribution to the Carbon County Economy

Direct Employment and Expenditures

Results from the Ranch Survey (see Chapter Three) indicate that ranches in Carbon County annually expend an average of almost \$154,151 to support ranch operations (Table 3-15). Such costs include a variety of expenditures such as labor, feed supplies, equipment, taxes, and other direct operating costs.

These estimates are believed to be very reliable. Ranch Survey results were correlated with available information from the U.S. Department of Commerce, Regional Economic Information System, indicates that the total expenditures made by agricultural operations in Carbon County were \$43,992,000 in 1995. With the operation of 286 ranch operations, the average annual direct expenditure for each ranch could be as much as \$153,818 per ranch.

Ranch Survey results also indicate that about 62 percent of annual Carbon County ranch expenditures (or about \$95,574 per ranch) represent purchases made inside Carbon County. Consequently, an estimated 286 ranches generate over \$27.3 million in direct expenditures to the Carbon County economy.

The estimated proportion of ranch expenditures that are purchased in Carbon County correlates closely to responses to a similar question that was posed by a Carbon County Stock Grower Association survey in March, 1990. Survey responses from 31 ranches in Carbon County indicated an average expenditure of about 58.1 percent of total gross ranch expenses in 1989. Since 1989 was a drought year, ranchers were also asked what proportion of total ranch expenditures were purchased in Carbon County during a more "normal year". Respondents to the survey indicated that the average proportion of total expenditures in Carbon County was about 61.3 percent (Raymond, 1990).

In terms of employment, survey responses to the more recent Ranch Survey suggest that an average of three to four persons (including family members) work full-time on local ranches in Carbon County (Table 3-16). Full-time employment is somewhat greater from July through September as local ranches carry out hay cuttings, move cattle to and from summer pastures, and participate in the branding of cattle.

While seasonal or part-time employment opportunities are available at local ranches, ranch representatives that two to three persons typically support the efforts of the full-time labor force at each ranch. Seasonal employment is higher during the July through September period when ranch activities are the most active.

Indirect Employment and Expenditures

The impact of direct expenditures on other sectors of Carbon County's economy was estimated through the use of a regional input-output model for the Wyoming economy that was originally developed by the U.S. Forest Service and, subsequently, updated by the University of Wyoming Cooperative Extension Service.

"Input-output models map the flow of dollars through a region's economy providing information on how the individual sectors interact within the economy and how the local economy is linked with the outside world. They provide estimates on how a given amount of a particular economic activity will translate into jobs and income in the region. They consider both the direct effect on the individual sector and indirect effects on other sectors due to economic linkages within the local economy. As a result, input-output models can provide estimates of the economic effects on the whole regional economy, from a change in any one sector" (University of Wyoming, Department of Agricultural Economics, 1996).

Through the use of the regional model for Wyoming, it is estimated that the input of \$27.3 million in direct expenditures by Carbon County cattle ranching operations in 1995 created some 898 jobs of indirect employment that generated almost \$15,288,000 million in indirect income to other Carbon County residents.

Contribution to the Revenue Base of Carbon County

The primary contribution of agriculture to the revenue base of Carbon County is through the collection of ad valorem taxes. Carbon County assigns an assessed value to several classes of agricultural lands. This assessment includes varied assessment values for dry farm, irrigated lands, range, farmsteads, waste and bog lands, as well as related improvements. Assuming that the mill rate represented an average of approximately 69.00 mills, Carbon County received approximately \$417,063 in ad valorem tax revenues from agricultural lands and related improvements in 1996 (Baldwin, 1997).

Cattle ranching also generates a limited amount of sales taxes and property taxes. For example, approximately \$16,346 in sales tax was derived from the sale of agricultural products from Carbon County in FY 1995. The amount of sales tax revenue is low since cattle are sold to intermediate buyers rather than to the "end users" of the agricultural product.

Potential Constraints/Opportunities Impacting Future Ranching Activity

Similar to other industries in Carbon County, the economic viability of the ranching industry is dependent upon a wide variety of various factors that impact the livelihood of cattle ranching operations. Some of these factors are discussed in the following paragraphs.

Range Conditions and Use of Local Grasses

Without irrigation, local grasses are generally characterized by adequate nutrient, protein, and mineral values for only about three months out of the year. Beyond the May-July period, grasses provide a source of "filler material" until the following spring season (Ellis, 1997). The lack of nutritional value in local grasses is influenced, in part, by limited precipitation and colder temperatures at least six months of the year.

During winter months, local ranchers expect to achieve gains in cattle weight that range between 0.75 and 2.0 pounds per day. Consequently, range conditions in the County generally do not encourage the holding of calves more than seven to eight months (Ellis, 1997).

Cows that are kept by the ranches during the winter months are provided supplemental sources of roughage, nutrients, protein, and minerals. The cows are usually kept to provide calves for the coming spring and summer season of production.

Sales Prices and Volumes

The ability to operate a profitable ranch is, in part, dependent upon the variable level of prices for feeder calves and yearlings. Prices obtained by local ranchers are dictated by the buyers because most Carbon County ranchers cannot afford to delay the sale of their calves or yearlings once the animals have achieved their desired weight gain (Ellis, 1997).

“Beef cattle prices in 1995 were the lowest since 1986. Prices started their decline in 1994. The prices at the beginning of the year (1995) were about \$70 per 100 pound weight (cwt), and steadily declined to about \$54 cwt. in November. The 1995 marketing year average price, at \$62.40, was \$9.90 below 1994” (Wyoming Agricultural Statistics Service, 1996).

Combined steer and heifer prices began 1995 at \$75.70 per 100 weight (cwt) and declined for the remainder of the year. The monthly low was \$63.50 in November. The marketing year average price was \$67.10, which was \$9.80 lower than 1994 prices. Unfortunately, such prices also represented the lowest marketing year since 1986 (Wyoming Agricultural Statistics Service, 1996).

“Calf prices started the year (1995) in the \$80’s and ended the year in the \$60’s. The marketing year average price of \$70.20 was down \$14.80 per cwt. from 1994 and was the lowest marketing year average price since 1986” (Wyoming Agricultural Statistics Service, 1996).

The amount, or total weight, of cattle sold at any given time is also an important consideration. Ranchers need to be selling, at least, 49,000 to 50,000 pounds of cattle for any given sale. Otherwise, ranchers will be subjected to significant sales price reductions (Ellis, 1997).

The precarious nature of the cattle ranching business is that while operating costs may increase, revenues can sometimes dramatically decline. Under these circumstances, it is the strong commitment to family, rural lifestyle, and community that frequently motivates ranchers and their families to stay in business.

Reliance Upon Federal Lands for Summer Pasture

About 58 percent of the respondents to the Ranch Survey indicated that 1995 ranch operations included the pasture of cattle on federal lands that are administered by the U.S. Bureau of Land Management. In 1995, each of these ranches pastured an average of about 1,567 AUM (animal units per month) on their BLM allotments.

When correlated with average number of AUMs on each ranch, the importance of grazing on federal lands that are administered by BLM becomes evident. This correlation indicates that roughly 43 percent of the cattle grazing by BLM permittee operations takes place on BLM allotments.

Survey results suggest that about 20 percent of the ranches in Carbon County operate, in part, on federal allotments that are administered by the U.S. Forest Service. In 1995, each ranch that operated on Forest Service allotments pastured an average of 609 AUMs. The average number of AUMs managed by Forest Service permittees in Carbon County suggest that about 17 percent of the grazing by Forest Service permittees occurs on their Forest Service allotments.

The dependence of many Carbon County ranchers upon federal allotments for summer pasture points out the importance of effective working relationships between federal range conservation personnel and local ranchers. About 44 percent of the respondents to the Ranch Survey said that the working relationship between agency personnel and Carbon County ranchers needed to change. Open-ended comments by Ranch Survey respondents indicate that BLM and Forest Service representatives are not listening enough to the experience and insights of local ranchers and fail to understand the importance of ranching to Carbon County’s economy. Informal discussions with various Carbon County ranchers also suggest that practical solutions are frequently overlooked. In addition, federal agencies sometimes require ineffective range management practices.

Recommendations that were provided emphasized BLM and the Forest Service need to understand that their decisions have economic impact upon the collective Carbon County community. Others spoke of a

protagonist and antagonist relationship that needs to be replaced by greater agency understanding, cooperation, and a desire to work together with local ranchers. It was pointed that federal agency representatives would gain a better understanding of grazing issues if greater attempts were made to listen to ranchers who have considerably more experience from their work on the land.

Summer Lease of Pasture

The pasturage of other animals not owned by local ranches is also a significant part of the ranching business in Carbon County because it usually supplements income that is derived from a ranch's own cattle production. Responses to the Ranch Survey suggest that about 32 percent of the ranches grazed an average of about 1,047 cattle during the summer of 1995, which they did not own. Perhaps more significant, the total amount of animals imported into Carbon County for summer pasture were 56 percent greater than the total amount of cattle that were owned by local ranches.

When these statistics are applied on a county-wide basis, it can be estimated that almost 95,900 cattle are pastured in Carbon County during the summer months. Ranchers who provide the summer pasture usually receive compensation on a per head basis, or a rate of gain for each animal.

Supplemental Income from Sheep Production

Sheep production is an important component of the ranching business in Carbon County. The income opportunity helps provide important supplemental income to some ranches and a primary income source to others. In either case, the participation in sheep production helps ranchers hedge the regular variations in cattle and sheep prices and, ultimately, generates a more stable ranch income.

Responses to the Ranch Survey suggested that about 13 percent of the ranches in Carbon County produce some sheep. If indicative of ongoing sheep production in 1997, about 37 Carbon County ranches are involved in sheep production. State agricultural extension agent, Doug Reynolds, indicates that only several serious sheep operations remain in Carbon County. These operations handle more than 5,000 sheep (Reynolds, 1996).

The limited number of sheep operations is a direct reflection of a significant decline in sheep production in Carbon County. In 1952, some 320,000 sheep were produced by ranches in Carbon County (Sun, 1996). Forty years later, 49 different sheep operations in Carbon County produced only 43,703 sheep and lambs in 1992 (Sun, 1995). More recently, an estimated 33,000 breeding sheep were believed to be on ranches in Carbon County in 1995 (Wyoming Agricultural Statistics Service, 1996).

The decline of participation in the industry is consistent with statewide trends. Since 1993, some 400 of the 1,500 sheep producers in the State of Wyoming have discontinued their operations (Wyoming Agricultural Statistics Service, 1996). Industry representatives indicate that the ongoing decline is primarily based upon:

- a significant level of predation by coyotes, golden eagles, and other animals; and,
- the lack of reliable labor that can herd sheep (Reece, 1996).

Another setback to sheep producers was the recent discontinuation of financial incentives that were previously authorized by the Federal Wool Act of 1954. The incentives, which continued through 1994, represented federal payments to U.S. producers that were generally based upon the gross price per pound of wool in relation to the world price of wool. In essence, greater incentives resulted from producers receiving a higher market price (Reece, 1996).

One wholesale wool buyer will collect raw wool at two facilities in Carbon County: Mountain Wool Company in Saratoga and Rawlins Wool Warehouse in Rawlins. However, other ranchers sell wool and lamb products directly to larger out-of-state wool mills (O'Toole, 1997).

Legislation in the 1997 State Legislature considered the creation of a Wyoming lamb and wool board that would tax sheep producers to promote the industry. This legislation failed to receive legislative support. While providing some savings to local sheep producers, it is feared that the lack of designated funds for

the promotion of lamb and wool products may further discourage future sheep production in Carbon County.

Absentee Ownership of Local Ranches

A sizeable number of ranches in the County are already owned by larger corporations and wealthy families that are based outside of Wyoming. This is particularly true for the Platte Valley area, which is generally situated south of Walcott Junction's intersection with Interstate 80 to the Colorado Border.

Many of the ranches in Carbon County, owned by larger corporations and families outside of Wyoming, have a different motivation than most resident ranchers who derive their primary livelihood from their cattle operations. Their interests are primarily to provide unique recreational opportunities for corporate executives and/or family members, derive income from cattle production to support basic ranch operation and maintenance costs, and gain some long-term appreciation in land values. The ownership of these ranches changes infrequently. These landowners generally have no interest in the subdivision of ranch lands or deriving a significant return-on-investment unless a serious change occurs in the financial status of a given corporation or family. Consequently, the commitments to these properties are usually long-term in nature (Saulcy, 1997).

From the standpoint of resource management, the ranch operation that carries no debt service can clearly operate differently. Without a driving profit requirement, these ranches can operate with fewer AUMs and less return-on-investment. Some of the ranches operate successful dude ranch operations or offer other recreational opportunities that supplement ongoing cattle operations.

As some ranchers face retirement during the next 20 years, a greater proportion of working ranches in Carbon County can be expected to gradually transition to this type of ownership and ranch operation. This trend is more likely to occur among the family-owned ranches in the Platte Valley and the Little Snake River area.

The Future Sale of Ranch Properties

The number of ranches in Carbon County's cattle industry has remained generally stable since 1992. Results from the Ranch Survey (see Chapter Three) indicate that roughly 20 of Carbon County's 286 ranch owners may be considering retirement and/or the sale of their ranches during the next one to five years.

During the next 20 years, some Carbon County ranch families may also wish to sell smaller portions of their ranches so that they can remain on their property. In other cases, some ranches may desire to sell larger blocks of land, e.g., over 5,000 to 10,000 acres, to land brokers or land developers in order to gain a substantive retirement income. Eight-nine percent of ranchers responding to the Ranch Survey said that they had no intent to subdivide ranch lands. Most of the remaining respondents, who said that future subdivision activity was anticipated, reported that any future subdivision activity would involve the sale of land parcels greater than 35 acres.

This type of land sale is already occurring in Carbon County. Approximately 14 miles north of Rawlins, there is a considerable amount of land that has been divided into parcels that are greater than 35 acres in size. These subdivisions are situated on former ranch lands that were sold to land brokers. National marketing programs have already been established to sell these land parcels.

The potential consequences of these sales are significant. Future demands for road maintenance and public services may gradually increase if new residential development is authorized in the area. Ultimately, such services will increase the cost of County operations and indirectly encourage the sale and development of other remote, undeveloped areas of the County.

Potential Industry Expansion

The Saratoga-Encampment-Rawlins Conservation District (SERCD) recently made a general review of available forage production in Carbon County for both livestock and wildlife. From this evaluation, SERCD concluded that Carbon County can sustain some 260,779 animal unit months (AUM) of additional livestock

production, or about 21,731 animal units per year. Consequently, it appears that there is potential for increased expansion of existing agricultural activities in Carbon County.

Results from the Ranch Survey suggest that the demand for agricultural lands for commercial agriculture is uncertain. The future use of agricultural lands in the County is largely dependent upon the future desires of the children and other relatives. Respondents to the Ranch Survey indicate that about 40 percent of future ranch ownership and management will be performed by children and relatives of existing ranch owners. Thirty percent reported that future ranch operations will be performed by existing owners; 10 percent will be made by hired ranch manager.

While the future interests are uncertain, it is extremely important that Carbon County reserves lands that are suitable for commercial agriculture in order that this land use opportunity can be encouraged for both long-term economic and resource conservation opportunities. Cattle ranching, sheep production, as well as hay and grain production in Carbon County, represent one of the most effective forms of long-term resource conservation for both land and wildlife resources. In contrast, the potential loss of large tracts of ranch lands represents one of the more serious threats to increased urbanization of the County's landscape and expanding the cost of local government services and facilities.

OIL AND GAS PRODUCTION

General Status

Production

In December, 1995, approximately 499 oil and gas wells were in active production. Approximately half of the wells were located on federal lands. About 43 percent of the wells were situated on privately owned properties; the remaining production occurred on lands that were leased by the State of Wyoming (State Oil & Gas Conservation Commission, 1995).

Overall oil and gas production in 1995 occurred from 597 producing formations in Carbon County. A review of detailed production information on federal lands in 1995 indicates that this production generally occurred west of Rawlins. However, some oil and gas was produced in the general vicinity of the Medicine Bow and the northeast part of the County.

The recovery of gas resources is the predominant oil and gas activity in Carbon County. In 1995, for example, gas production comprised 75,851,052 Mcf (1,000 cubic feet) of production. The natural gas recovered in Carbon County presently has considerably greater economic value because the industry presently enjoys higher natural gas prices.

While there is considerable gas production in Carbon County, gas reserves from the northern portions of Wyoming and southern Montana also provide a significant source of production that is processed in Carbon County. This product is primarily processed by Colorado Interstate Gas Company (CIG), a subsidiary of Coastal Corporation.

In 1995, only 1,341,178 barrels (Bbls) of oil were captured from reserves in Carbon County. Little of the oil production in the County consists of crude oil. Rather, most of the production represents an oil condensate that can be used in the production of cheaper fuels such as low octane gasoline (Webb, 1997).

The crude oil that is refined at Sinclair Refinery comes via 8 and 10-inch pipelines from the Platte gathering system near Casper. The gathering system receives crude oil from reserves near Casper and Cheyenne. Secondly, roughly eight to 500 barrels per day comes from oil fields near Bairoil. However, no crude oil is obtained from any production in Carbon County (Laurentius, 1997).

Processing Facilities and Product Transportation System

Once extracted from underground reserves, gas production is transported to one of various nearby compressor stations in Sweetwater or Carbon County where the product is refined and pressurized for transport to market destinations that are situated north, south, east and west of Carbon County. The oil and gas industry has established a complex underground network of gas transportation lines that carry gas product to locally based compressor stations and market destinations (Table 4-5 and Figure 4-5). Gas pipeline expansions are planned by the oil and gas industry for the 1997-2000 period to serve increased production in the Green River, Washakie, and Wind River basins.

TABLE 4-5 EXISTING GAS PROCESSING PLANTS IN 1997 CARBON COUNTY, WYOMING		
Compressor Station	Company	Estimated Capacity (MMCF)
Echo Springs	Williams Natural Gas Co.	125
Rawlins	Colorado Interstate Gas Co.	230

Note: MMCF equals one million cubic feet of natural gas.

Source: DeBruin, 1996

Some pipeline expansion projects are already underway. In 1996, Colorado Interstate Gas Company installed a temporary gas compressor station at Muddy Gap which is situated about 50 miles north of Rawlins. CIG intends to eventually build a compressor station at Muddy Gap that will contain over 10,000 horsepower of compression. Williams Natural Gas Company, which is based in Tulsa, Oklahoma, expects to complete the installation of a new compressor station near Arlington (Kaufmann, 1997). This facility will help facilitate the transportation of gas supplies near Casper to markets in Kansas City, Chicago, and other markets (Lloyd, 1997)

The Sinclair Refinery processes about 58,000 barrels per day of crude oil. Products that are derived from the refinery process primarily includes gasoline, diesel #1, diesel #2, and railroad fuels, as well as asphalt. Similar to other refineries in the oil industry, the Sinclair Refinery attempts to boost its production levels during the winter months in order to have an adequate inventory during the summer.

The Refinery plans to increase its production to the processing of some 70,000 barrels per day of crude oil sometime in late 1998. Such an increase will represent a 21 percent increase over existing production in early 1997.

Some gasoline and diesel fuel products that are processed by the Refinery are sold to the Union Pacific Railroad, local truck stops, and other smaller fuel distributors in Carbon County. However, the primary markets of the Sinclair Refinery are located in Salt Lake City and Denver. Sinclair Refinery owns the Seminole Pipeline that carries fuel products to Salt Lake City. The Refinery's Medicine Bow pipeline serves customers in the Denver, Colorado area.

OIL AND GAS PROCESSING FACILITIES AND TRANSPORTATION NETWORK

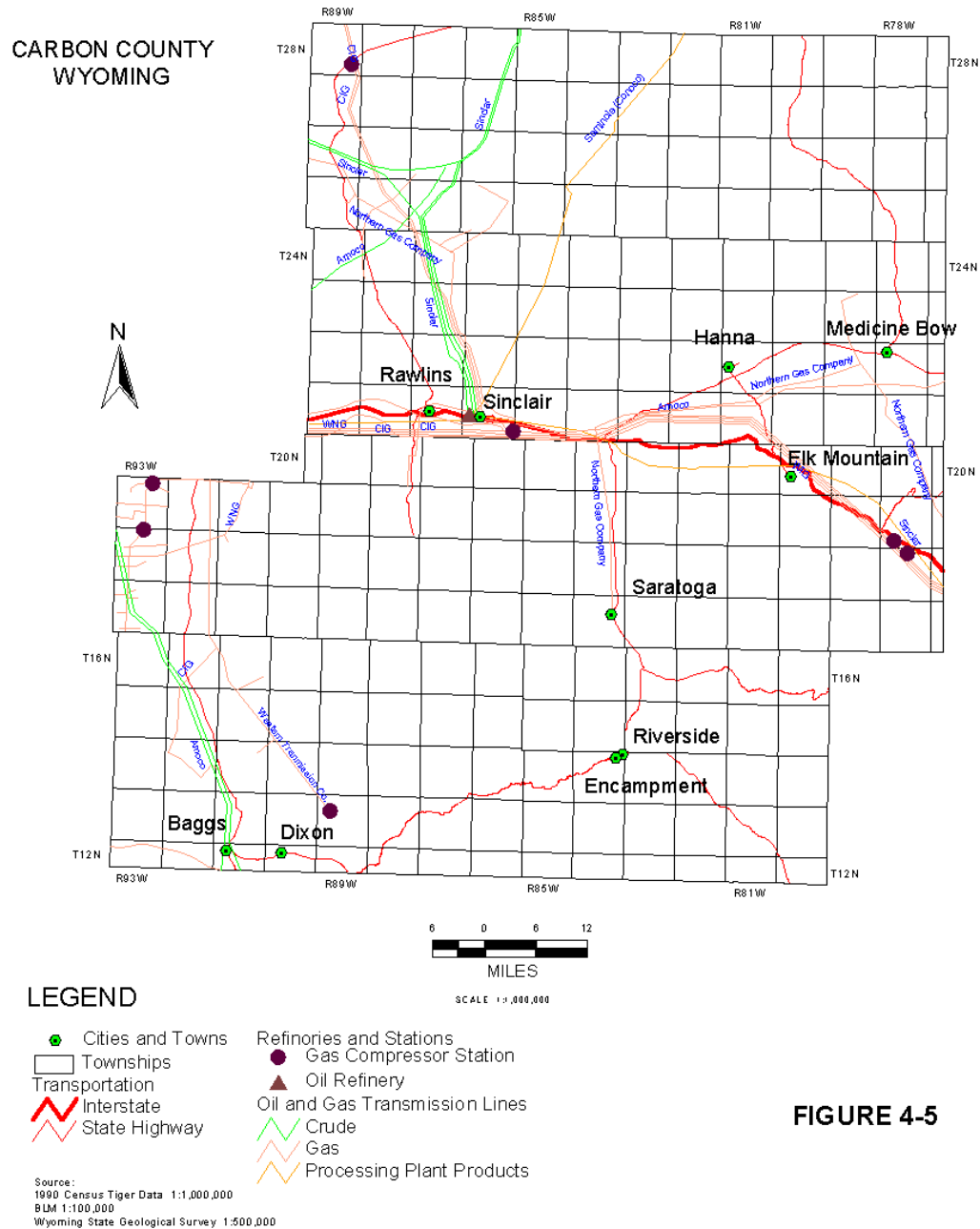


FIGURE 4-5

Contribution to the Carbon County Economy

Direct Employment and Expenditures

The primary economic benefit of oil and gas production in Carbon County is generated by employment and other direct expenditures at the Sinclair Refinery at Sinclair, gas compressor stations, as well as ongoing exploration and production activities in the County.

Sinclair Refinery

The Sinclair Refinery employed approximately 230 persons in 1995. This employment level declined somewhat in 1996 when several employees retired. However, overall employment has generally remained stable since about 1970.

Annual salaries and wages represent some \$12.0 million of expenditures by the Sinclair Refinery. Other direct expenditures include approximately \$1.5 to 2.0 million of services purchased from local contractors in Carbon County. An additional \$3.6 million is expended for electrical power and other utility services (Laurentius, 1997). Consequently, the total direct expenditures of the Refinery contribute roughly \$17.6 million to the Carbon County economy.

Gas Processing Operations

Gas processing facilities in Carbon County include CIG's Rawlins compressor station and the Echo Springs plant that is operated by the Williams Field Services Company. The Riner compressor station in Sweetwater County, which is operated by Williams Natural Gas Company, is also important to the Carbon County economy because 14 employees at the Riner Station reside in Carbon County.

In a cumulative sense, these three gas processing facilities provided some 89 jobs to Carbon County residents in 1995 and 1996 that generated some \$4.8 million in annual wage and salary expenditures in 1995 and 1996. Other direct expenditures that were made in Carbon County to support these operations represented about \$75,000 (Woodruff, 1997; Kaufmann, 1997; and Quintana, 1997). The total annual direct expenditures by gas processing operations in Carbon County are about \$4,923,000.

Oil and Gas Producers

The contribution of oil and gas producers to employment and wages in Carbon County is extremely difficult to accurately quantify because of the proprietary nature and competitiveness of oil and gas exploration and production activities. However, available data from the Oil and Gas Conservation Commission and the University of Wyoming, College of Agriculture, Department of Agricultural Economics permit a gross estimate of direct expenditures in 1995.

"Total expenditures for pre-drilling, drilling, and completion of one natural gas and oil well in Southwest Wyoming was estimated to average \$567,559 (in 1995). This amount included total direct labor expenses of \$85,958 per well. Direct employment per well was estimated to be 6,288 hours. Since each well requires less than one year to develop, direct employment was converted to annual job equivalents. Based on 2,000 hours per annual job equivalent of employment, one well generated a total of 3.1 jobs on an annual basis. From the survey of producers in the region (Southwest Wyoming includes the Counties of Carbon, Lincoln, Sublette, Sweetwater, and Uinta), it is estimated that approximately 60 percent of the total expenditures associated with developing a well are retained in the five-county area" (University of Wyoming, College of Agriculture, Department of Agricultural Economics, 1996).

More recent discussions with other representatives of the oil and gas industry suggest the proportion of well development expenditures that are made inside of Carbon County are significantly less than 60 percent, and closer to between 10 and 20 percent (McCutcheon, 1997).

Since 1991, the annual number of well drilling permits that have been issued by State and federal agencies has increased (Table 4-6). For example, 50 federal and state permits were issued to oil and gas producers for the drilling of new wells in Carbon County in 1995. A representative of the State Oil and Gas Conservation Commission indicates that roughly 95 percent of the drilling permits are carried out (Watson, 1997).

TABLE 4-6 NUMBER OF DRILLING PERMITS ISSUED BY STATE AND FEDERAL AGENCIES FOR PROSPECTIVE OIL AND GAS WELLS IN CARBON COUNTY	
Year	Number of Issued Permits
1991	17
1992	26
1993	35
1994	135
1995	50
1996	77

Source: Watson, 1997

In order to estimate the economic contribution of oil and gas producers in Carbon County, the following assumptions were made concerning 1995 production activities:

- approximately 48 new oil and gas wells were developed in 1995;
- oil and gas companies expended roughly \$340,536 (\$567,559 x 60 percent) to develop each well; and,
- about 1.8 jobs in Carbon County were required to support the development of each well.

Consequently, oil and gas producers made an investment of roughly \$16.01 million for oil and gas production in the County in 1995. Such expenditures included direct employment for approximately 86 jobs in Carbon County.

Another significant economic contribution is derived from oil and gas production in neighboring Sweetwater County. For example, production centers operated by AMOCO at Bairoil and Wamsutter annually generate roughly \$3.3 million to some 65 employees. Discussions with an AMOCO representative suggest that most of these employees reside in Carbon County (Laney, 1997).

Indirect Employment and Expenditures

The impact of almost \$33.0 million of direct expenditures on other sectors of Carbon County's economy was estimated through the use of a regional input-output model for the Wyoming economy that was originally developed by the U.S. Forest Service and, subsequently, updated by the University of Wyoming Cooperative Extension Service.

"Input-output models map the flow of dollars through a region's economy providing information on how the individual sectors interact within the economy and how the local economy is linked with the outside

world. They provide estimates on how a given amount of a particular economic activity will translate into jobs and income in the region. They consider both the direct effect on the individual sector and indirect effects on other sectors due to economic linkages within the local economy. As a result, input-output models can provide estimates of the economic effects on the whole regional economy, from a change in any one sector" (University of Wyoming, Department of Agricultural Economics, 1996).

Through the use of the regional model for Wyoming, it is estimated that the input of \$32.85 million in direct expenditures by Carbon County's oil and gas industry in 1995 created some 428 jobs of indirect employment that generated almost \$10.26 million in indirect income to other Carbon County residents.

Contribution to the Revenue Base of Carbon County

General

The oil and gas industry in Carbon County pays a combination of State taxes that ultimately benefit the revenue base of Carbon County. Oil and gas producers in Carbon County primarily pay ad valorem taxes to the County and severance taxes to the State which are generally based upon an assessed value of production.

Ad Valorem Revenues

In 1996, gas producers paid approximately \$5,956,674 in ad valorem taxes to Carbon County. In addition, oil producers generated approximately \$1,553,887 in ad valorem tax revenues for the same year (Baldwin, 1997). An additional \$813,061 in ad valorem taxes were derived from pipelines and real property.

About 70 percent of the revenues generated from ad valorem taxes are provided to the two school districts in Carbon County. Carbon County receives approximately 20 percent of these taxes; the municipalities obtain the remaining revenues based upon their proportion of the total municipal population in Carbon County (Baldwin, 1997).

Severance Tax Revenues

Oil and gas production activities in Carbon County also generate some severance tax revenues to Carbon County. The statutory requirements associated with the distribution of statewide severance tax revenues are found in Title 39, Section 6-305 of the Wyoming State Statutes.

In FY 1996, approximately \$649,306 of severance tax revenues were received by Carbon County and its ten municipalities. The distribution of these revenues was as follows (Wyoming Department of Revenue, 1997).

<u>Local Government Agency</u>	<u>Revenue Received</u>
Carbon County	\$161,436
Baggs	\$9,212
Dixon	2,371
Elk Mountain	5,893
Encampment	16,595
Hanna	36,442
Medicine Bow	13,175
Rawlins	317,683
Riverside	2,879
Saratoga	66,686
Sinclair	16,934
Municipal Government Total	<u>487,870</u>
TOTAL	\$649,306

A State Department of Revenue representative reports that there is no practical way to determine what proportion of these severance tax revenues were derived from oil and gas production in Carbon County (Burton, 1997).

Potential Constraints/Opportunities Impacting Future Oil and Gas Activities

The continued growth of the oil and gas industry in Carbon County is dependent upon numerous factors, such as:

- geologic factors and related resource potential;
- the demand for natural gas;
- changes in drilling technology;
- environmental regulations;
- the availability of physical access to prospective sites; and,
- the distance required to connect to an existing pipeline transportation system.

Each of these factors influences the cost of exploration and production, and the potential return-on-investment. Prior to exploration, it is not uncommon for oil and gas companies to evaluate geologic and geophysical consideration in a given area for a two-to-six year period (McCutcheon, 1997).

The significance of each factor is very site specific to a given oil and gas company that seeks an exploration and production opportunity. The importance of each factor to a given project is generally unknown to persons who are outside of the company that identifies and evaluates a specific site location for oil and gas exploration. The following overview of these factors briefly describes the general potential of future oil and gas development, and identifies some of the significant issues that will likely influence the extent of future development.

Resource Potential

"The Greater Green River Basin has been a significant regional producer of natural gas for more than 65 years" (Barlow & Haun, Inc., 1995). The eastern portion of this geologic area extends about 10 to 40 miles into the west part of Carbon County. Gas reserves in Carbon County are primarily located in the east sections of the Great Divide and Washakie Basins (De Bruin, 1996). These two basin areas are characterized by stratigraphic traps, and produce from younger geologic formations, e.g., Cretaceous (U.S. Bureau of Land Management, 1987).

Since 1960, gas production in the Greater Green River Basin has expanded considerably. In 1960, some 300 natural gas wells produced about 101 billion cubic feet (Bcf). In 1993, some 2,839 wells produced about 600 Bcf. During the past 30 years, gas development has gradually shifted to the east and west sides of the Greater Green River Basin. Within Carbon County, for example, significant gas production has already occurred in the Blue Gap, Barrel Springs, Echo Springs, and Standard Draw fields. On a cumulative basis, gas industry representatives believe that these four production areas contain some 558 billion cubic feet of remaining gas reserves (Barlow & Haun, 1995).

Future Demand for Natural Gas from the Central Rocky Mountain Region

Between 1991 and 1992, gas supply and demand forecasts to the year 2010 were made by the Gas Research Institute, the National Petroleum Council, and the California Energy Commission for the Rocky Mountain region. Supply studies by these organizations were based upon the correlation of anticipated demands to remaining supplies, the general economics of drilling and production, and pipeline infrastructure. Related forecasts developed by these organizations suggest that future production in the Greater Green River Basin will be 2 to 3 times greater than the production in 1995. In order to meet these demands, future production in the Greater Green River Basin will need to increase to approximately 1.4 trillion cubic feet (Tcf) by the year 2010 (Barlow & Haun, 1995).

Despite industry forecasts, the U.S. Bureau of Land Management anticipates a 15 percent decline in production to the year 2010. This forecast is incorporated into BLM's resource management plan for the Green River Resource Management Area. The basis of this forecast is unclear.

Drilling Efficiency

Increased drilling efficiency and improved gas well completion technology have improved the efficiency of well development and production, as well as a greater proportion of successful well completions.

In 1973, one rig typically drilled about four wells per year. The proportion of successful well completions was about 30 percent. Improved technology increased the number of drilled wells to about seven wells in the early 1980's; successful well completions rose to 45 percent. In 1995, oil rigs typically are capable of drilling about ten wells. Successful well completions are about 85 percent (Barlow & Haun, 1995).

Environmental Regulations and its Impact Upon Profitability

Significant oil and gas reserves are located in the subsurface estate of many federal lands in Carbon County. The Bureau of Land Management provides the administrative oversight for oil and gas exploration activities on federal lands in Carbon County that are leased for oil and gas exploration and production. However, BLM coordinates its evaluations and decisions with other federal agencies, which, in some cases, have resource management responsibilities for the use of the surface estate.

The documentation, field studies, and environmental analyses that are required to apply for the use of federal lands, permits to drill, right-of-way or road use permits, as well as reclamation and abandonment plans requires a considerable investment by oil and gas producers. In December, 1995, despite this constraint, 50 percent of the producing wells in Carbon County were located on federal lands (Watson, 1997).

While the oil and gas industry retains its incentive to explore and produce oil and gas reserves, the delays associated with the review of draft environmental impact statements, court challenges, and related delays in agency determinations frequently diminish the potential profitability from some exploration programs. Delays in the processing and approval of permits alters potential "windows of opportunities" as the exploration programs of oil and gas companies are based, in part, upon existing supplies, anticipated consumer demands and related market pricing.

Access to Prospective Exploration and Production Areas

Existing roads that are situated east of Carbon County's west boundary (through range 89 west) provide a considerable amount of vehicular access within the primary oil and gas production areas of the County. The ownership of this road varies between the federal government, Carbon County, and larger private landowners.

While the construction of some road access can be expected for most exploration sites, a portion of the access is frequently available via a combination of existing private roads, County roads, and State highways. Consequently, many of the prospective exploration and production areas are already accessible; future development in these areas will likely not require significant costs for site access.

Roads that are owned by the federal government are typically in fair to good condition. Road maintenance is almost entirely provided by oil and gas companies who receive appropriate federal permits for surface use and drilling operations. The Bureau of Land Management defines general design and construction criteria for temporary, resource, local, and collector roadways (U.S. Bureau of Land Management, 1989). These standards, which accompany surface use and right-of-way permit stipulations, help maintain the quality of roads in the western part of Carbon County.

Potential Industry Expansion

The future growth of the oil and gas industry is dependent upon the continued availability and accessibility to lands that contain oil and gas reserves. Because of the proprietary and competitive nature of this industry, the location of potential reserves and the intentions of the oil and gas industry can only be generalized.

For land use planning purposes, the location of ongoing oil and gas production provides an important indication of where some future oil and gas reserves will be developed. A review of available information and discussions with industry representatives indicates that significant portions of the Great Divide and Washakie geologic basins in Carbon County (Figure 4-6) will continue to be the location of future exploration and production during the next 20 to 25 years.

Similarly, the presence of existing pipeline systems and roads are critical factors that influence the economics of future investment decisions for oil and gas exploration and production. A significant road network is already present in both the Great Divide and Washakie geologic basins.

Another important consideration is the location of existing, proposed, and potential oil and gas processing facilities and product transportation systems. An existing east-west corridor through Carbon County, which is generally parallel to Interstate 80, already contains the Sinclair Refinery, gas processing plants, and segments of regional pipeline systems. As the demand for gas and oil increases in market areas such as Kansas, Oklahoma, and Utah, some oil and gas processors may desire to develop new gas processing plants, e.g., compressor stations, in the vicinity of existing product transportation systems. Such facilities will help gas companies increase the potential volume of gas that can be transported to market destinations.

Colorado Interstate Gas, for example, recently completed a new compressor station at Muddy Gap that contains over 10,000 horsepower of compression. CIG also plans to install a new "jumper" compressor station and meter station at the existing Rawlins station in order to compress gas into CIG's existing Wyoming Interstate Company pipeline (Woodruff, 1997).

TRANSPORTATION

General Status

The transportation industry in Carbon County primarily includes the Union Pacific Railroad, three truck stops, and ten local trucking companies.

Union Pacific Railroad's operation in the County is based in Rawlins, Wyoming. Its rail facilities establish an east-west rail corridor through Carbon County.

The three primary truck stops in Carbon County are located along Interstate 80. Smaller truck stop operations are situated at Walcott Junction, as well as the west side of Rawlins.

There are four trucking companies based in or near Baggs. Four additional trucking companies are based, or have offices in Rawlins. Another trucking company operates from Saratoga.

Union Pacific Railroad

Union Pacific Railroad activities in Carbon County support UPR's successful freight transportation business between Chicago and Los Angeles. The freight service primarily includes the delivery of various commodities, petrochemicals, automobiles, and inter-modal freight, e.g., containerized and roll-on/roll-off freight. The UP Railroad operates about 75 trains through Carbon County on a typical day; each train carries approximately 100 cars (Adams, 1997).

The east-west railroad corridor through Carbon County is owned and operated by UP Railroad. Rail spurs are located at selected locations along the corridor to support larger industrial customers such as Cyprus-Shoshone Coal, Arch of Wyoming, and Louisiana-Pacific Corporation.

PRIMARY GEOLOGIC BASINS IN CARBON COUNTY

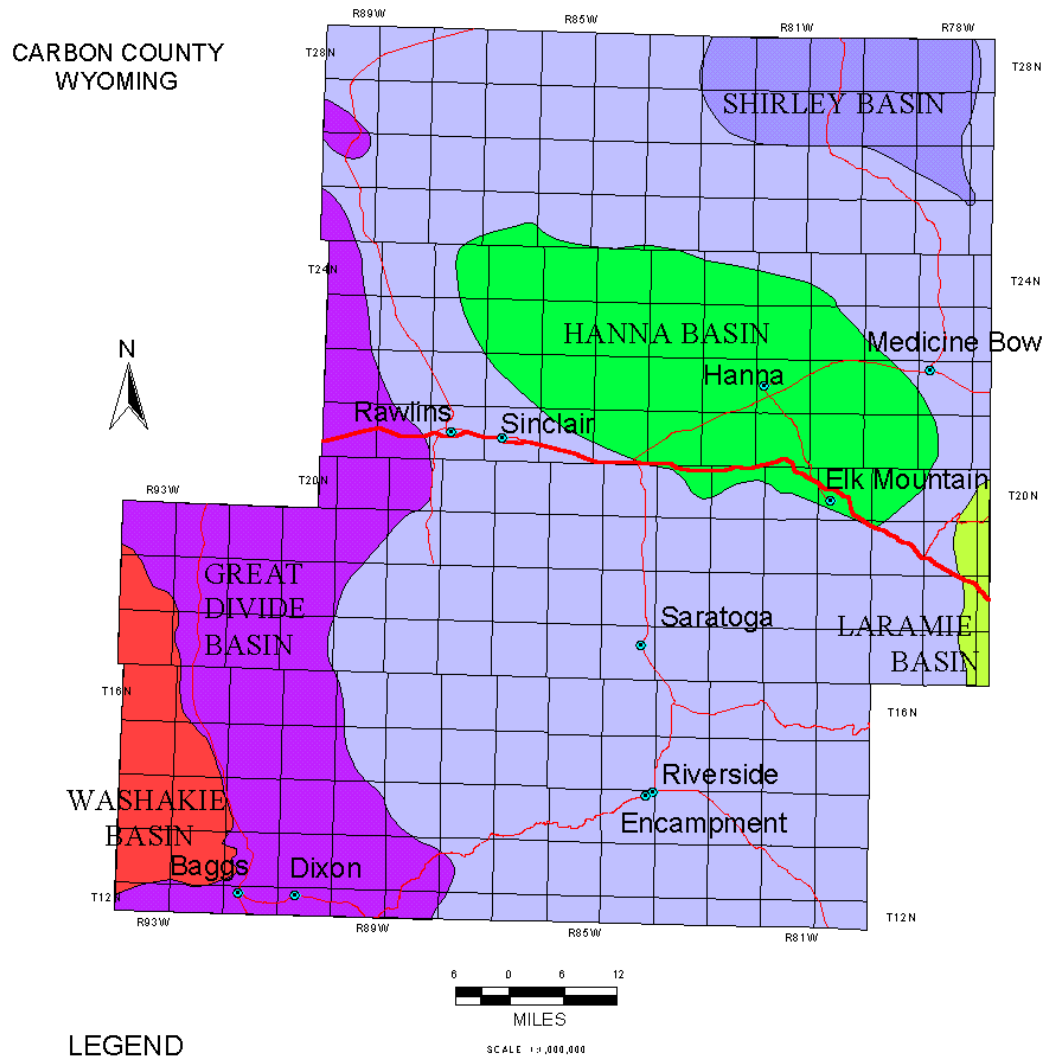


FIGURE 4-6

Truck Stops

An average of some 4,400 commercial trucks (excluding pick-up and panel trucks) traveled daily along Interstate 80 in 1995 (State Department of Transportation, 1996). The truckers driving larger, diesel-engine trucks are supported by the presence of three major truck stops along Interstate 80 between Sinclair and the west side of Rawlins. Other truck stops are located at Walcott Junction and the west Rawlins area.

Each of the truck stops includes an extensive range of facilities and services. Restaurants, truck servicing, fuel distribution, telecommunication services, shower and bathroom facilities, sundry items, clothes, and other supplies are available at each truck stop.

Contribution to the Carbon County Economy

Union Pacific Railroad

The Union Pacific Railroad (UPR) employed about 138 full-time employees in 1995 and 140 employees in 1996. However, total employment rose to about 154 employees in 1997.

Annual wages expended for UPR employees was approximately \$6.5 million in 1995 and 1996. About six new employees were hired in the second quarter of 1995; as a result, 1995 wages were slightly less (Adams, 1997). In 1997, annual wages are expected to be about \$7.5 million.

Direct expenditures by the UP Railroad include substantial volumes of fuel from the Sinclair Refinery. Other local contractors and suppliers also directly support the railroad operations in Carbon County. In 1996, combined UPR purchases of fuel and other local services in Carbon County accounted for some \$76.0 million of direct operating expenditures (Adams, 1997; Hartman, 1997).

Truck Stops

Three large truck stops provided jobs for approximately 272 Carbon County residents in 1995 and 1996. The cumulative wage expenditures of the three truck stops were roughly \$3,191,101 in 1995 and increased to about \$3,200,642 in 1996.

Other direct expenditures by the truck stops in Carbon County included significant purchases of fuel from the Sinclair Oil Refinery; electrical, water, and solid waste collection services; as well as purchases of some supplies. In 1996, these expenditures represented approximately \$11,258,854 in local purchases (Kay, 1997; Wesley, 1997; Hone, 1997; and McClaine, 1997).

Cumulative Direct Expenditures of the Transportation Industry

In 1995 and 1996, the Union Pacific Railroad and the three truck stops generated approximately 410 jobs in Carbon County. This employment generated approximately \$9.7 million in local wages and salaries in both 1995 and 1996.

Other direct expenditures of the transportation industry are significant. In 1996, such expenditures were approximately \$96.9 million. Again, the primary expenditures represented the purchases of fuel by both the Union Pacific Railroad and two of the truck stops. Fuel requirements and purchases by the UP Railroad in the 1Q of 1997 suggest a continued growth in the amount of other direct expenditures by the transportation industry in Carbon County.

The inter-relationship of the transportation and oil and gas industries in Carbon County is a very encouraging sign in the Carbon County. Such relationships help maintain the viability of both industries and, at the same time, sustain continued employment opportunities in the County.

Indirect Employment and Expenditures

The impact of direct expenditures in the transportation industry on other sectors of Carbon County's economy was estimated through the use of a regional input-output model for the Wyoming economy that was originally developed by the U.S. Forest Service and, subsequently, updated by the University of Wyoming Cooperative Extension Service.

"Input-output models map the flow of dollars through a region's economy providing information on how the individual sectors interact within the economy and how the local economy is linked with the outside world. They provide estimates on how a given amount of a particular economic activity will translate into jobs and income in the region. They consider both the direct effect on the individual sector and indirect effects on other sectors due to economic linkages within the local economy. As a result, input-output models can provide estimates of the economic effects on the whole regional economy, from a change in any one sector" (University of Wyoming, Department of Agricultural Economics, 1996).

The application of the input-output model to 1996 direct expenditures by the transportation industry (\$96.9 million) suggest that the Union Pacific Railroad and the three truck stops generated approximately \$12.8 million dollars in indirect expenditures within the Carbon County economy. Further, these indirect expenditures generated about 537 jobs in the service sector of the County's economy.

Contribution to the Revenue Base of Carbon County

Sales tax and ad valorem tax collections are the primary sources of revenue from Carbon County's transportation industry. In FY 1996, Carbon County derived approximately \$1,086,336 from retail sales at local truck stops. Approximately \$645,061 in ad valorem taxes were derived from the railroad industry. Secondly, Carbon County received some \$200,697 from use tax collections (Liu, 1996).

Potential Constraints/Opportunities Impacting Rail and Ground Transportation

The Demand for the Movement of Freight

The long-term viability of the transportation industry in Carbon County relies, in part, upon the demand for the movement of goods and materials by rail and truck. The demand for transportation facilities and services in the County is largely dependent upon the location of industrial production, regional consumer demands, and existing transportation corridors.

The transportation of larger volumes of commodities by rail is an attractive mode of product delivery if rail lines are already in place and situated in close proximity to manufacturing and production locations, as well as market destinations. For example, the Louisiana-Pacific Corporation's timber operation in Saratoga and the two coal mining operations in the Hanna Basin are situated close to the primary east-west rail corridor in Carbon County. In addition, rail spurs facilitate the loading of product by these respective industries onto appropriate rail cars. Market destinations for the timber and coal industries primarily include customers who own or are adjacent to accessible rail facilities. Consequently, feasible opportunities for the convenient transport of commodities and other manufactured products along UPR's east-west rail corridor can be expected to sustain and likely increase future rail traffic through Carbon County.

In a regional sense, Carbon County is also strategically located along a significant portion of the UP Railroad system that connects the Midwest United States with the U.S. West Coast (Figure 4-7). UPR is able to deliver commodities and manufactured products from the Midwest, as well as resource commodities in the western states, to larger consumer markets and production centers in California. Some commodities, e.g., trona, that are delivered to the U.S. west coast also represent exports to the Far East and other industrial centers.

Figure 4-7
Union Pacific Railroad System
(in COLOR)

FIGURE NOT AVAILABLE

In contrast, the trucking industry has greater flexibility to service customers that are located away from established rail corridors and/or require the transport of smaller volumes of materials and products.

Interstate truck movements rely heavily upon the federal Interstate Highway System that was authorized by the U.S. Congress in 1954 (Pittsburgh Diesel Institute, 1997).

Interstate 80 extends from New York City to San Francisco, California. This highway corridor passes through the industrial Midwest areas of Gary, Indiana and Chicago. Much of the Interstate 80 corridor parallels the Union Pacific Railroad's east-west rail system. As stated earlier, an average of 4,400 trucks per day traveled through Carbon County on Interstate 80 in 1995. This represents about 45 percent of the total average annual daily traffic that uses Interstate 80.

Similar to the UP Railroad system, Interstate 80 represents a significant ground transportation corridor that links industrial and manufacturing areas in the East and Midwest United States with growing communities in the western states, and larger consumer markets along the U.S. west coast. The importance of the Interstate 80 corridor to the movement of goods and materials across the United States points to an increased potential demand for the trucking industry.

Prospects for Future Rail Traffic Through Carbon County and Related Employment

Union Pacific Railroad is the primary rail carrier in the United States. The UP Railroad owns some 36,000 miles of track in the United States that is used to move about 3,100 railroad cars each day.

The expanded influence of Union Pacific Railroad in the rail transportation industry was influenced primarily by UPR's merger with the following transportation companies since 1982:

1982 Missouri-Pacific Railroad,
1984 Western Pacific,
1988 MKT Railroad,
1995 Chicago-Northwest, and,
1996 Southern Pacific.

Another merger with ConRail is under consideration.

With these mergers, UPR is also undertaking significant improvements to its rail fleet and other system improvements. For example, planned improvements to the recently acquired Southern Pacific Railroad will require some \$500 million in 1997. Some \$650 million is targeted for the purchase of new locomotives; another \$150 million is planned for the purchase of new freight cars (Hartman, 1997).

The mainline across Wyoming will continue to be important to Union Pacific Railroad. This mainline is characterized by higher revenues that are prompted largely by the continued transportation requirements associated with the trona mines in Sweetwater County. These and other rail transport opportunities will facilitate the creation of some 70 to 78 new jobs in Wyoming in the 1997-1998 period (Hartman, 1997).

The Availability of Trucking Services

Almost 360,000 companies in the United States are involved in interstate trucking. Roughly 96 percent of the motor carriers in the United States operate 28 or less trucks.

There are about three million truck drivers that work in the United States. About 1.1 million of these drivers are long-haul truckers who own and operate their own truck.

Continued production in the manufacturing sectors of the U.S. economy does not suggest any slow-down in the movement of goods and materials. Consequently, the number of interstate trucking companies and truckers is not expected to decline in the foreseeable future.

The Quality of Roadway Pavement Along Interstate 80

Experienced long-distance truckers can easily maneuver their vehicles and payloads over a wide variety of road conditions. Roadway and weather conditions in south central Wyoming pose occasional challenges to some truckers. However, it is believed that roadway conditions along portions of Interstate 80 generate potential safety problems to truck drivers.

The Federal Highway Administration recently completed the resurfacing of a portions of Interstate 80 between Walcott Junction and Sinclair which formerly were characterized by a heavily, grooved roadway surface. Similar conditions are known along other segments of the Interstate 80 corridor. Grooved highway surfaces probably reflect a combination of factors such as heavier truck weights and growing volumes of interstate truck traffic.

Such conditions pose a potential safety hazard to truckers and passenger vehicles, especially during higher wind conditions. Carbon County recommends that the Federal Highway Administration should regularly review roadway conditions along the I-80 corridor, plan and schedule repairs, and construct appropriate roadway repairs to alleviate future road safety hazards.

Potential Industry Expansion

Commercial trucks and mechanics will be needed to support the proposed Elk Mountain Mine in the Carbon Basin. This project is expected to employ about 60 truckers and mechanics by the year 2001. Such employment is expected to continue through, at the least, the year 2006.

Additional rail traffic along the Union Pacific Railroad system in Carbon County is foreseen by industry representatives. The Union Pacific rail corridor through Carbon County is already receiving additional rail traffic from freight traffic that previously was served by the former Southern Pacific Railroad system in Colorado. The hiring of roughly 12 new employees per year is expected to take place from 1997 to, at least, the year 2000 to enable Union Pacific to accommodate additional rail traffic from the Southern Pacific system (Adams, 1997).

The Wyoming Department of Transportation indicates that passenger and truck traffic along Interstate 80 (in Carbon County) is growing at a rate of about two to three percent per year. For planning purposes, the Department anticipates a three- percent annual rate of growth through the year 2015. By the year 2015, average daily traffic for all vehicular traffic along Interstate 80 will likely represent about 17,850 vehicles per day. About 45 percent of this traffic (8,032 vehicles) will include commercial truck traffic.

As interstate truck traffic increases along Interstate 80, the potential investment opportunity for additional truck stop development can be expected. Any such development would most favorably be located near existing vehicular exits from the Interstate highway.

In the short term, some renovation of the Rip Griffin's Truck and Travel Center is expected sometime in the 1997-1998 period. However, such improvements will be made within the existing complex (Hone, 1997).

The Burns Brother's Travel Stop is considering plans to expand on private property that is adjacent to the existing truck stop complex. The expansion will include the construction of a larger store and restaurant facility (McLaine, 1997).

TOURISM

General Status

The visitor industry of Carbon County is represented primarily by approximately 40 visitor accommodation facilities. These accommodations include smaller resorts, hotels, motels, bed and breakfast operations, and guest ranch operations. Most all of the accommodations are located in the communities of Rawlins, Saratoga, Encampment, Riverside, Baggs, Medicine Bow and Elk Mountain. However, guest ranches are primarily located in more remote locations within the Platte Valley and Little Snake River valley.

Restaurants, retail stores, outfitters, and other services typically serve a mix of residents and visitors. From an economic perspective, these services represent a portion of the County's service sector even though many primarily support visitors who come and stay in one of various visitor accommodations.

At the same time, it is also recognized that a significant income is derived from visitors who are passing through the County and make expenditures at restaurants, retail stores, and gas stations. Consequently, the importance of these retail services to Carbon County cannot be overlooked.

Contribution to the Carbon County Economy

Direct Employment and Personal Income Derived from Visitor Accommodations

Available information from the Wyoming Department of Employment indicates that about 303 persons were employed at several types of visitor accommodations in Carbon County in 1995. The Wyoming Department of Employment also estimates that this direct employment generated an annual payroll of approximately \$2,520,421 (Evans, 1997).

State employment and income data associated with visitor accommodations are understated since some of the smaller visitor accommodations in Carbon County are owner-operated. Annual estimates of payroll sometimes do not reflect the income to these individuals unless owner-operators pay an individual worker over \$500 in a calendar year (Evans, 1997).

The U.S. Bureau of Economic Analysis estimates that the payroll and local earnings from visitor accommodations in Carbon County represented \$4,553,000 in 1995. This amount includes owner-operated enterprises and other earnings that are not reflected in the State of Wyoming's employment and payroll information.

Unlike larger visitor destinations, it is believed that the majority of incoming revenues, which are generated by visitor accommodations, remain in Carbon County. Revenues from locally-owned visitor accommodations are important because they are more likely to be reinvested or expended in the Carbon County economy.

In contrast, accommodations that are owned by persons or companies, who live outside of the County, primarily contribute wages to paid employees, as well as some local expenditures that are needed to support hotel and motel operations. Otherwise, other revenues by these companies are not expended or reinvested into the Carbon County economy.

Indirect Employment and Income

The impact of direct employment expenditures on other sectors of Carbon County's economy was estimated through the use of a regional input-output model for the Wyoming economy that was originally developed by the U.S. Forest Service and, subsequently, updated by the University of Wyoming Cooperative Extension Service.

"Input-output models map the flow of dollars through a region's economy providing information on how the individual sectors interact within the economy and how the local economy is linked with the outside world. They provide estimates on how a given amount of a particular economic activity will translate

into jobs and income in the region. They consider both the direct effect on the individual sector and indirect effects on other sectors due to economic linkages within the local economy. As a result, input-output models can provide estimates of the economic effects on the whole regional economy, from a change in any one sector” (University of Wyoming, Department of Agricultural Economics, 1996).

Through the use of the regional model for Wyoming, it is estimated that the input of \$4.55 million in direct employment and earnings from Carbon County's visitor accommodation operations in 1995 created about 52 jobs of indirect employment. In turn, this employment generated approximately \$0.91 million in indirect income to other Carbon County residents.

Visitor Expenditures

The State Department of Commerce, Tourism and Marketing Division, recently retained Morey and Associates to conduct a survey of accommodations throughout the State of Wyoming to determine seasonal visitor expenditures and other economic impacts from the tourism industry. The consultant aggregated 1996 survey results into four regions of the State. The information that is relevant to Carbon County is data for the region known as Medicine Bow-Flaming Gorge.

Available data suggests that some \$263 million were expended by visitors to the Medicine Bow-Flaming Gorge region in 1996. Roughly \$200 million of these estimated expenditures were calculated to be visitor purchases for restaurants, groceries, entertainment, shopping, gasoline, and local transportation. A correlation of these estimates with 1995 personal income earnings in Carbon County's retail trade (roughly \$21.2 million) suggests a significant over-estimate of visitor expenditures for accommodations.

Contribution to the Revenue Base of Carbon County

State Lodging Tax

The State lodging tax that is generated from visitor accommodations generates an important source of revenue for the County. In FY 1996, approximately \$138,162 of lodging tax revenues was collected by the State Department of Revenue. After a deduction of about \$1,396 of administrative fees to the State general fund, the remaining \$136,766 of lodging tax revenues were distributed to Carbon County and the municipalities where most accommodations are located.

State Sales Tax

State sales taxes are another important revenue source that is generated from the sale of accommodations. The sales tax rate is presently five percent. One percent of the four percent tax is returned entirely to the Wyoming's counties and municipalities. The revenues generated from the remaining four percent are split between the State General Fund and local government. The State Treasurer distributes 78 percent of the collection to the State General Fund and the remaining 28 percent to local governments.

The distribution to local governments is determined by computing the percentage that net sales and use taxes collected by the vendors in each county (including its cities and towns) bears to total net sales from all vendors in the state. The local government share is distributed among the cities, towns, and counties based upon the 1990 population of each. The total resident population for Carbon County was 16,659 persons in 1990; the municipal population within the County was 14,417 residents. Consequently, Carbon County only receives 13.5 percent of the incoming revenue (Liu, 1997)

In FY 1996, Carbon County collected \$221,749 from the sales taxes upon hotels and motels. Collections from recreational vehicle and other campgrounds in FY 1996 included \$114,268 (State Department of Revenue, 1997).

Potential Constraints/Opportunities that Influence the Visitor Industry

Lack of Information Concerning Visitor Characteristics

There is no specific information concerning the estimated number of persons who annually visit Carbon County, the average length of visitor stay, where overnight visitors find accommodations, as well as how much visitors spend in Carbon County during their stay. This information is essential to owners and operators of visitor accommodations in Carbon County. The Department of Planning and Development developed and distributed a visitor survey in the summer of 1996 that was intended to obtain this data and other relevant information. Visitor surveys were distributed from the Riverside visitor center, Savery Store, the Rawlins Chamber of Commerce, and the Saratoga Chamber. However, only 38 surveys, an inadequate number, were received. Further, virtually all completed surveys were obtained from visitors who came to either the visitor center in Riverside or the Rawlins/Carbon County Chamber of Commerce office. Consequently, the sampling was unsuccessful in obtaining information that is essential to a more detailed economic evaluation of the visitor industry.

It is important that the future development of Carbon County's visitor industry rely, in part, upon appropriate information concerning the characteristics and activities of incoming visitors. The performance of annual visitor interviews and seasonal accommodation surveys represent two important opportunities to collect valuable information. Such information would be extremely useful to the visitor industry of Carbon County and would enable community leaders to better determine the focus of future events that are aimed at attracting visitors. Two efforts are recommended to gain a better understanding of visitor characteristics:

1. Carbon County, in cooperation with the Saratoga Chamber of Commerce, Rawlins-Carbon County Chamber of Commerce, Bow Area Economic Development Commission, and the Encampment-Riverside Merchants Association, should annually administer personal interviews of visitors during the summer and fall seasons.
2. A cooperative effort among the four local Chamber of Commerce and economic development organizations should be organized to obtain regular information from the owners of local accommodations. Such a survey should be made two times per year to collect information that will help determine the seasonal differences between Spring/Summer and Fall/Winter visitor traffic.

Available Data from the Wyoming Visitor Survey of 1996

A Wyoming visitor survey was conducted in July-August, 1996 by Morey & Associates. A total of 950 visitors were interviewed in Casper, Cheyenne, Cody, and Jackson. This report provides useful information to the State of Wyoming and the four communities where visitors were interviewed. However, it is believed that most of the data derived from this survey is not applicable to Carbon County visitor characteristics.

Some of the results suggest potential visitor characteristics that are worth noting. Almost three-fourths of the visitors that were interviewed said that their visit to Wyoming was part of a larger trip within the Rocky Mountain region (Morey and Associates, 1996). About 44 percent of the visitors were planning to stay or stayed between three to five nights in Wyoming; 21 percent stayed for more than five nights. With the exception of the Jackson, Wyoming area, visitors typically spent about one to two days in Casper and Cody, and only one night in Cheyenne, and Evanston.

In terms of accommodations, 48 percent of those who planned to stay overnight were going to stay in hotels and motels. Twenty-seven percent planned to stay with friends and relatives. About 11 percent were travelling with a recreational vehicle and stayed in an RV campground. Another 10 percent used designated camping areas (Morey and Associates, 1996).

Expenditure data that was generated from the survey indicates that the average visitor party (2.7 adults and 1.1 children) was approximately \$192 per day. This total daily expenditure included an average accommodations expense of roughly \$70 (Morey and Associates, 1996).

Economic Impact Study of Travel Industry in Wyoming

Morey and Associates, Inc. and the University of Wyoming, College of Business, published a second annual report on the economic impact of the visitor industry in Wyoming. This report was based primarily on person-to-person surveys of 1,964 travelers within Wyoming in 1996. In addition, a mailed survey was distributed to 362 accommodations, 112 governmental campgrounds, and 61 private campgrounds throughout the State of Wyoming.

While not specific to Carbon County, there is some information obtained by the study that is pertinent to the visitor industry in Carbon County. Some of the more relevant data that were drawn from the study include the following:

Statewide Characteristics

- The greatest proportion of travelers to Wyoming are from the Midwest and Rocky Mountain region.
- The primary reason for visiting Wyoming was Yellowstone National Park and visiting friends and relatives.
- Sixty-eight of the travelers to Wyoming were visiting other states in the Rocky Mountain region.
- The average length of stay was 4.3 days.
- The average size of the visitor's traveling party was 2.6 adults and 0.9 children.
- The median household income of the traveler was \$47,417.
- 52 percent of the travelers come in the summer; 20 percent visit Wyoming in the Spring. Fourteen percent come in the Fall. The remaining fourteen percent come in the winter.

Uinta, Sweetwater, Carbon, Albany and Laramie Area

- In terms of accommodations, 52 percent of the travelers stay in motels, one percent in bed and breakfasts, and one percent in guest ranches.
- Thirteen percent of the travelers to this area stayed in private campgrounds; another four percent stayed in public campgrounds.
- About 21 percent visited and stayed with friends or relatives.
- Eight percent stayed in this area only for the day and did not use any accommodations in the area.
- In 1996, about 26 percent of all travelers to Wyoming visited the five-county area. About 42 percent of these travelers came in the summer of 1996.

Increase of the Visitor Average Length of Stay

The visitor characteristics of Carbon County are not well known. Responses to the 1996 Wyoming Visitor Survey suggest that visitors coming to Carbon County may stay between one and two days. In contrast, the Wyoming Travel Industry impact study suggests that the average length of stay ranges between three and eight days; the variability in data lies in the type of accommodations that visitors use.

Nevertheless, any further expansion of the tourism industry in Carbon County should include efforts that encourage a greater length of visitor stay. The longer visitors stay in Carbon County, greater income and employment are derived by local accommodations. In turn, the service sector is enhanced by greater expenditures at local restaurants, gift shops, and other retail establishments.

The Platte Valley Arts Council coordinates and presents a popular July 4 celebration, which annually brings a sizeable number of visitors to Saratoga and the Platte Valley. The City of Rawlins, Downtown Development Authority, holds an annual Cowboy Poet Gathering in Rawlins that attracted about 600 visitors in 1996 (Babcock, 1997). The Encampment Centennial Committee has scheduled a series of annual events in 1997 to commemorate its 100-year anniversary. These and other promotions throughout the County are important events that will continue to attract visitors and increase the visitor length of stay.

In Encampment and Savery, visitor traffic is also encouraged through the operation of visitor centers that provide general information and guidance to incoming visitors. While physically small in size, these facilities are extremely important to encouraging a longer length of stay. Personnel at local visitor centers are able to advise travelers of attractions, accommodations, and points-of-interest that are frequently unknown to the incoming visitor. When accompanied with a “welcoming attitude”, such information can easily change and improve the general plans of incoming visitors, provide a more favorable impression of the County, as well as increase the visitor length of stay.

The Cyclical and Unstable Nature of the Visitor Industry

Tourism is a cyclical industry because it is subject to a wide range of social and economic factors that can generate significant fluctuations in the number of incoming visitors, the length of time visitors spend in an area, and visitor expenditures. Factors that can influence incoming visitor trends include ever-changing patterns in visitor travel, the promotion of new regional destinations, the price of gasoline, airline strikes, international military conflicts, regional disasters, unusual weather conditions during anticipated peak seasons, and other factors. At the same time, tourism can also provide a seasonal supplement to household income from jobs in the visitor industry and sustain the economic viability of many small businesses in the service sector.

Tourism, or the visitor industry, should be regarded as a supplement to primary industries that provide the basic building blocks of the regional economy. The central Rocky Mountain region is presently enjoying considerable attention from American visitors; it represents one of the faster growing areas of the United States. In addition, many Americans are curious and drawn to the State of Wyoming because of its natural beauty, wildlife, scenery, and related outdoor recreational opportunities. Carbon County is clearly representative of these attractions and recreational opportunities.

While existing resources and recreational opportunities suggest a potential growth in tourism in Carbon County, these trends are inadequate to encourage an extensive expansion of visitor industry accommodations and services in the County. Tourism is not a viable economic alternative to balanced industrial growth and the presence of other primary employers. States such as Hawaii and its four counties have learned that an over-investment in tourism can generate significant fluctuations and declines in employment, household income, and governmental revenues. Smaller communities in Wyoming and the western United States have also experienced increased land speculation, higher property taxes, and rising land values that, in some cases, have forced the relocation of long-term residents.

In this context, Carbon County recommends that the visitor industry of Carbon County continue to be encouraged. Promotional efforts by Chamber and local business organizations should continue to pursue efforts that will attract visitors and increase the visitor length of stay. However, community leaders should remain diligent to maintain a desired balance between primary industrial activities and supplemental tourism income.

Potential Industry Expansion

No new plans for new accommodation facilities or significant facility expansions are known to be in progress at the time of this report. In 1996, however, a significant renovation was recently made of the Saratoga Inn in Saratoga.

In terms of new visitor attractions, the development of a private ski area has been proposed for a site in the vicinity of Green Mountain, an area southwest of Encampment. The stated objective of this proposed facility is to provide winter recreational opportunities for visitors and residents.

Carbon County favors the expanded development of winter recreational opportunities in Carbon County. Such development would increase winter visitor traffic and, in turn, bring greater economic viability to local visitor accommodations.

GOVERNMENT

General

Federal, State, and County agencies that operate in Carbon County comprise the government sector of the regional economy. The government sector provides technical and professional jobs to a significant number of residents in Carbon County.

From an econometric perspective, governmental operations represent a “public cost” that is paid in small part by resident taxpayers within the regional economy. Most governmental expenditures in the regional economy are subsidized primarily by private industry, e.g., mineral industry (Zeiger, 1997).

At the same time, governmental operations pay wages and salaries to public employees who, in turn, make indirect expenditures within the Carbon County economy. Given the cumulative size of the government payroll in Carbon County, the contribution of indirect and employment is significant.

Contribution to the Carbon County Economy

Direct Employment and Expenditures

In 1995, federal, State, County, and municipal agencies employed about 2,039 Carbon County residents. Wages and salaries earned by government workers in Carbon County represented about \$49,201,000 (U.S. Bureau of Economic Analysis, 1997).

Jobs that were provided by State, County, and municipal agencies in 1995 accounted for about 85 percent of all government sector employment. The remaining jobs were provided by federal agencies (U.S. Bureau of Economic Analysis, 1997).

Employment in the government sector has generally declined during the 1986-1995 period. One exception was State of Wyoming employment, which increased employment between 1989 and 1991 (U.S. Bureau of Economic Analysis, 1997). While the number of jobs has generally declined during the 1986-1995 period, annual wages and salaries have generally increased.

Indirect Employment and Expenditures

The impact of direct expenditures on other sectors of Carbon County's economy was estimated through the use of a regional input-output model for the Wyoming economy that was originally developed by the U.S. Forest Service and, subsequently, updated by the University of Wyoming Cooperative Extension Service.

“Input-output models map the flow of dollars through a region's economy providing information on how the individual sectors interact within the economy and how the local economy is linked with the outside world. They provide estimates on how a given amount of a particular economic activity will translate into jobs and income in the region. They consider both the direct effect on the individual sector and indirect effects on other sectors due to economic linkages within the local economy. As a result, input-output models can provide estimates of the economic effects on the whole regional economy, from a change in any one sector” (University of Wyoming, Department of Agricultural Economics, 1996).

Through the use of the regional model for Wyoming, it is estimated that the input of \$49.2 million in direct wage and salary expenditures by the government sector in 1995 created approximately 300 jobs of indirect employment that generated almost \$4.59 million in indirect income to other Carbon County residents.

Contribution to the Revenue Base of Carbon County

The government of Carbon County receives revenues from federal land payments, the State's proportional distribution of various State tax collections, State and federal grants, reimbursements, as well as the County's collection of local fees and other miscellaneous revenues (Table 4-7).

TABLE 4-7 CARBON COUNTY REVENUES JULY, 1995 THROUGH JUNE, 1996		
Type of Revenue	Amount	
Property Tax		\$ 2,339,264
State Tax Distributions		1,107,331
1% Sales Tax	\$262,753	
5% Reimbursement Tax	16,977	
Cigarette Tax	17,448	
Delinquent Taxes	8,153	
Vets Auto Exemption	765	
Vets Property Exemption	2,252	
Gasoline Tax	159,485	
Severance Tax	161,436	
Private Car Lines	12,503	
Sales Tax (County share)	304,463	
Special Fuel Tax	157,205	
Lodging Tax (County share)	3,497	
Other	394	
Federal and State Grants		1,046,387
Rents		38,486
Federal Land Payments		418,303
Reimbursements		270,154
County Fees		532,419
Miscellaneous		152,661
TOTAL		\$ 5,905,005

Note: County records reflect federal land payments of \$418,303 which is less than the \$669,567 reported by federal agencies. This difference may reflect a payment that was recorded after the end of the fiscal year.

Source: Carbon County Treasurer's Office, 1998

Federal Land Payments

"Federal land payments to counties are composed of two parts: 1) federal revenue sharing payments and, 2) Payment-in-lieu-of-Taxes (PILT). Federal revenue sharing payments represent the portion of fees collected on federal lands located in a county that are returned to local government. PILT payments are revenues that supplement the federal revenues sharing payments. The PILT payment is based on a county's population, amount of federal entitlement acres, and the previous year's federal revenue sharing payments" (University of Wyoming, Cooperative Extension Service, 1995).

In FY 1995, Carbon County received approximately \$669,567 in federal land payments that were derived from the U.S. Forest Service and Bureau of Land Management programs. About 62 percent of these revenues represented revenue sharing receipts derived from commercial timber sales and recreation. The remaining 38 percent of federal land payments comprised PILT payments (Taylor, 1998).

Distribution of State Revenues to County Government

In FY 1996, the State distributed portions of its collections for State severance, ad valorem, sales, use tax, and other revenues. These revenues accounted for approximately \$1.1 million in County revenues.

State and Federal Grants

Over \$1.0 million in County revenues were generated from a variety of State and federal grants to Carbon County.

Potential Constraints/Opportunities Impacting Future Government Activity

U.S. Government agencies that operate in Carbon County are limited by the statutory authorities granted by the U.S. Congress, as well as the funds appropriated by Congress for specific agency operations, programs, and projects.

State agencies are typically limited by the statutory authority that is provided by the State Legislature, as well as appropriations by the State Legislature for government activities, programs, and projects. However, the operation of some State agencies, e.g., Wyoming Game and Fish Department, is also supported by specific State revenues, e.g., hunting and fishing license fees, as well as federal funds.

County and municipal government are dependent primarily upon a proportion of State taxes that are derived from industrial mineral extraction. However, Carbon County and the ten municipalities also receive revenue distributions from property taxes, sales taxes, and lodging taxes.

Potential Industry Expansion

A significant expansion in the government sector is anticipated. This expansion will result from the construction of a new maximum security facility at the existing Wyoming State Penitentiary complex in Rawlins. Some 225 to 230 new employees are expected to be hired by the Wyoming Department of Corrections by the year 2000 to fulfill the operational requirements of the new maximum security facility. The City of Rawlins, Department of Community Development, anticipates that about 149 of these new employees will relocate to Rawlins for this employment (City of Rawlins, Department of Community Development, 1997).

OTHER SECTORS OF THE CARBON COUNTY ECONOMY

Construction

Building contractors, heavy construction, and specialty trade contractors are primarily located in Rawlins and Saratoga. However, various tradesman work and reside throughout Carbon County's ten municipalities and unincorporated area.

In 1995, approximately 467 persons were employed in Carbon County's construction industry. Wages, salaries, and earnings that were generated from construction activity represented approximately \$11,076,000 in 1995 (U.S. Bureau of Economic Analysis, 1997).

Both construction employment and industry earnings have been highly variable during the 1986-1995 period.

The level of industry earnings rose significantly in 1990 and 1991, but fell to under \$10.0 million in 1992 and 1993. Subsequently, construction industry earnings have returned to over \$11.0 million, which parallels industry earnings in 1986 (U.S. Bureau of Economic Analysis, 1997). Increased residential sales and building contractor rates have likely boosted construction earnings in 1995.

The construction industry generates sales and use tax collections to Carbon County and its ten municipalities. In FY 1996, the construction industry generated \$106,812 in sales tax collections in Carbon County, as well as \$476,531 of use tax revenues.

Smaller Manufacturing Operations

In 1994, there were, at least, 19 smaller manufacturers (excluding oil and gas, mining, and lumber mills) that operated in the Carbon County economy. Smaller manufacturing establishments included a computer component manufacturer, furniture manufacturers, printing establishments, chemical producers, leather product manufacturers, as well as industrial machinery and equipment operations.

Available information from the U.S. Bureau of Economic Analysis indicates that the smaller number of manufacturing establishments in Carbon County contributed approximately \$799,000 in personal income and earnings to the regional economy in 1995. Available information from the Wyoming Department of Employment suggests that there are about 42 Carbon County residents who are employed by smaller manufacturing operations (Evans, 1997).

PacifiCorp, a majority partner, and Eugene Water and Electric Board, recently invested in the development of a wind energy farm near Arlington, Wyoming. The investment was made in cooperation with the Bonneville Power Administration. The first phase of the project includes the installation of 69 wind turbines. The long-term operation and maintenance of the 69 turbines will provide employment for approximately three persons. The project will also generate a significant amount of State impact assistance revenues to Carbon County.

Service Sector

The service sector of Carbon County includes retail and wholesale trade establishments; finance, insurance, and real estate services; as well as other professional and technical services. In 1995, almost 3,300 jobs were associated with these types of services. Payroll and personal income earnings derived from the service sector included about \$60,657,000 (U.S. Bureau of Economic Analysis, 1997).

Results of the Small Business Owner survey suggest that small businesses in the service sector annually expend an average of about \$346,505 for labor and other direct costs. Responses from the survey also indicate that approximately 63 percent of these expenditures are made within Carbon County. Assuming the operation of about 310 establishments in the service sector, the service sector contributed roughly \$67.7 million in direct expenditures to the Carbon County economy in 1995.

The contribution of the service sector to the revenue base of Carbon County is made through the generation of sales and use tax revenues. In FY 1996, this sector generated slightly more than \$5.2 million of sales tax collections and about \$214,319 of use tax collections (State Department of Administration and Information, Economic Analysis Division, 1996) (Table 4-8).

TABLE 4-8 FY 1996 SALES AND USE TAX COLLECTIONS CARBON COUNTY SERVICE SECTOR		
Type of Service	Sales Tax Collections (\$)	Use Tax Collections (\$)
Retail Trade	3,655,213	182,943
Wholesale Trade	703,887	* 182,943
Finance, Insurance, and Real Estate	28,205	1,252
Professional and Technical Services	833,486	30,124
TOTAL	\$5,220,791	\$214,319

Note: Use tax collections from retail and wholesale trade in Carbon County were combined. Retail and wholesale trade generated \$182,943 in use tax collections in FY 1996.

Source: State Department of Administration and Information, Economic Analysis Division, 1996

PROSPECTS FOR FUTURE STABILITY AND GROWTH IN THE CARBON COUNTY ECONOMY

Continued Availability of Federal and State Lands for Multiple Use Management

Carbon County is blessed by an abundance of natural resources that include rangelands, minerals, timber, fish and wildlife, and water. The availability of these resources and the access that is afforded via local transportation systems offer a continued opportunity to strengthen and expand the existing economic base of Carbon County. Further, these opportunities are essential to sustaining the resident population of Carbon County.

Many of the natural resources in Carbon County are situated on federal and State lands. Without the cooperation and diligent management of the U.S. Bureau of Land Management and the U.S. Forest Service, future access to these resources could become significantly limited, make resource use uneconomical, and discourage future investment.

A shared community vision is needed to develop and use these resources. Survey responses from ranchers and residents, as well as public comments received during public meetings, call for a balance between resource development and resource conservation. Such a balance is needed in the future resource and land management decisions that are made by federal and State agencies. The decision-making process for these decisions must incorporate a careful and meaningful evaluation of potential economic consequences that are associated with proposed resource and land management actions. Such evaluations should be, at least, comparable to the level of analyses that are made to evaluate wildlife and water resources.

Economic Relationship Between Carbon County Communities

The economic analyses made for the Land Use Plan reveal that the residents of the 10 communities in Carbon County, and the surrounding unincorporated areas, are very reliant upon each other. This concept is well known to long-time residents of the County who understand the importance of supporting their neighbors during an unexpected storm or medical emergency.

Perhaps, less known, is the economic co-dependence of Carbon County communities to each other. For example, the people of Encampment should be extremely concerned with oil and gas production north and west of Baggs. The people of Baggs should become very enlightened about the realities of the coal mining industry in Hanna and the Medicine Bow mine. The people of Saratoga and Rawlins should work cooperatively in tourism promotion.

The reason for this co-dependence is that the State tax revenues that are distributed to Carbon County and its 10 municipalities, e.g., ad valorem, severance, and sales taxes, are distributed through a complicated set of State tax distribution formulas. These formulas are largely based on where industrial activity occurs, i.e., which county, as well as the proportion of County and municipal populations to the overall State population.

Consequently, despite respective community prides, Carbon County is comparable to an extended family. The residents of the unincorporated area, as well as the 10 municipalities, in Carbon County are economically tied together. The lifeblood of local governmental operations is dependent upon the continued viability of the County's overall economic base, smaller manufacturing operations, the construction industry, and the service sector.

From this perspective, the maintenance of economic viability in the Carbon County economy and related economic expansion is the responsibility of County and municipal government, Carbon County Economic Development Corporation, other community organizations, and all residents. The Council of Governments, the Carbon County Economic Development Corporation, and other community organizations should work individually and collectively to improve the economic climate in Carbon County, encourage greater economic diversity, ensure the availability of lands for future industrial expansion, and increase revenue generation for County and municipal government.

Economic Diversity

Regional economies that are primarily based upon the development and use of natural resources are typically characterized by boom and bust cycles that result from the completion of individual mining and exploration projects, fluctuations in market demand and prices, and other external factors. These experiences are well known to long-time Carbon County residents:

- The closure of coal mines in the Hanna Basin in 1954 and limited coal production to the early 1970's;
- The closure of timber mills in Hanna and Saratoga in the early to mid-1960's; and,
- The resurgence of coal production in mid-1970's and the closure of coal mines in the Hanna Basin in the early 1980's.

New resource development projects typically generate an influx of new workers and their dependents. When an expected or unexpected decline in the resource development project occurs, workers and their families leave the project area and/or seek potential opportunities in other sectors of the regional economy. The outmigration of a significant workforce frequently generates significant impacts upon the service sector, transportation, small manufacturing operations, and other sectors of the economy. In this context, it is

important that Carbon County takes aggressive steps to diversify its economy in order to reduce the “sting” of future economic downturns.

With greater economic diversity, the regional economic impacts associated with future mine or mill closures or temporary layoffs can be reduced. Further, a broader based economy offers a wider range of employer opportunities that will encourage the possible transfer of professional and technically trained personnel to other sectors of the regional economy.

In the absence of economic diversity, a greater relocation of workers and their dependents becomes more likely. The erosion of the service sector and other economic sectors occurs; business closures are frequently inevitable despite the quality of service.

Greater economic diversity also offers prospective employment to young adults of Carbon County after high school or college graduation. The long term loss of the County’s younger residents is frequently attributed to the lack of employment opportunities in Carbon County. Some open-ended responses to the Resident Survey, which was conducted for the County Land Use Plan, made various references to the continued loss of the County’s young adults and the related desire for greater employment opportunities in the regional economy.

The encouragement of increased economic diversity requires the availability of land that is designated for smaller manufacturing operations and light industrial activities (see Chapter Seven). These potential opportunities should be conveyed to potential industrial investors by representatives of the Carbon County Economic Development Corporation, municipal representatives in Carbon County, and representatives of the State Division of Community and Economic Development.

Greater economic diversity is not necessarily synonymous with a significant expansion in the size of the economy. Responses to the Resident Survey indicate an interest for some population growth and some economic growth. For this reason, it is important that prospective industrial operations are selectively encouraged and that the community’s overall vision for future economic growth is not overlooked. The scale of existing residential areas, the size of existing industrial properties, community attitudes, and the general development pattern that have emerged from the Land Use Plan process suggest a need for new light industrial activities that use between 10 and 50 employees.

Need for a Carbon County Economic Development Plan

Because of the need for increased economic diversity in the regional economy, a new economic development plan should be prepared for Carbon County that encourages greater economic stability. The plan should, in part, identify a specific range of future economic development opportunities and strategies for attracting recommended new types of industrial and commercial enterprises.

Greater stability can be achieved when new industrial and commercial enterprises are established that offer attractive employment opportunities for local high school graduates, returning college graduates, and new residents who together will bring new talents, vision, and investment capital into the region. The front range of Colorado and other selected urban areas represent potential areas where future economic development prospects seeking relocation or expansion are located. Value-added enterprises such as the proposed wood treating facility in Medicine Bow remain as important economic development opportunities. The synergy and working relationship of existing industries with new value-added enterprises can create a more attractive business environment, and encourage a continued, long-term investment by existing, natural resource-based industries.

The preparation of a regional economic development plan for Carbon County is timely. The availability of economic information in the County Land Use Plan provides considerable background concerning the structure of the regional economy, population trends, existing land uses, and a general vision for future land use development. In addition, the State of Wyoming has established a State business council that intends to reorganize and intensify Wyoming’s overall economic development program.